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Vol. 56
No. 1

JOURNAL

Canadian
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CDA MISSION STATEMENT

The Canadian Dental Association serves the dental profession — and through the profession the Canadian public — as the authoritative national voice and resource for dentists.

In cooperation with the provincial dental associations and affiliated organizations, CDA offers services, in both official languages, intended to support and advise all areas of dentistry and to represent, protect, promote and develop the interests of the dentist as ethical practitioner, professional, educator, student, researcher, business person, citizen and individual.

CDA recognizes a particular responsibility to contribute to the development of national positions and standards related to dentistry, dental education, dental research, dental equipment, dental materials and dental personnel.

CDA is dedicated to the principle that all Canadians should have the best oral health care it is possible to provide; it actively seeks input from and dialogue with governments, consumers and all those interested in dentistry to enable it to serve more effectively both its members and the Canadian public.

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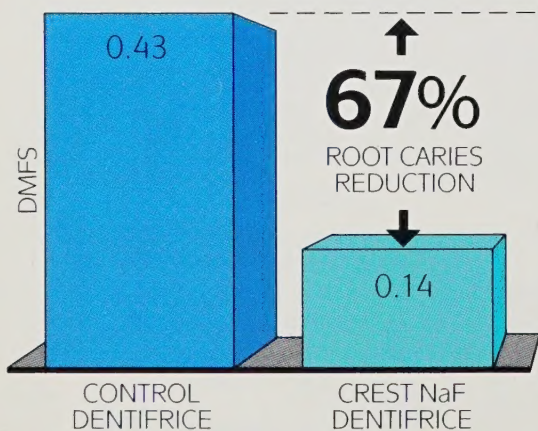
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References: 1. Jensen ME, Kohout F. The effect of a fluoridated dentifrice on root and coronal caries in an older adult population. JADA 1988; 117: 829-832. 2. 1985 NIDR adult oral survey: Oral Health of United States Adults (1985-1986).

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Canadian Dental Association
l'Association Dentaire Canadienne

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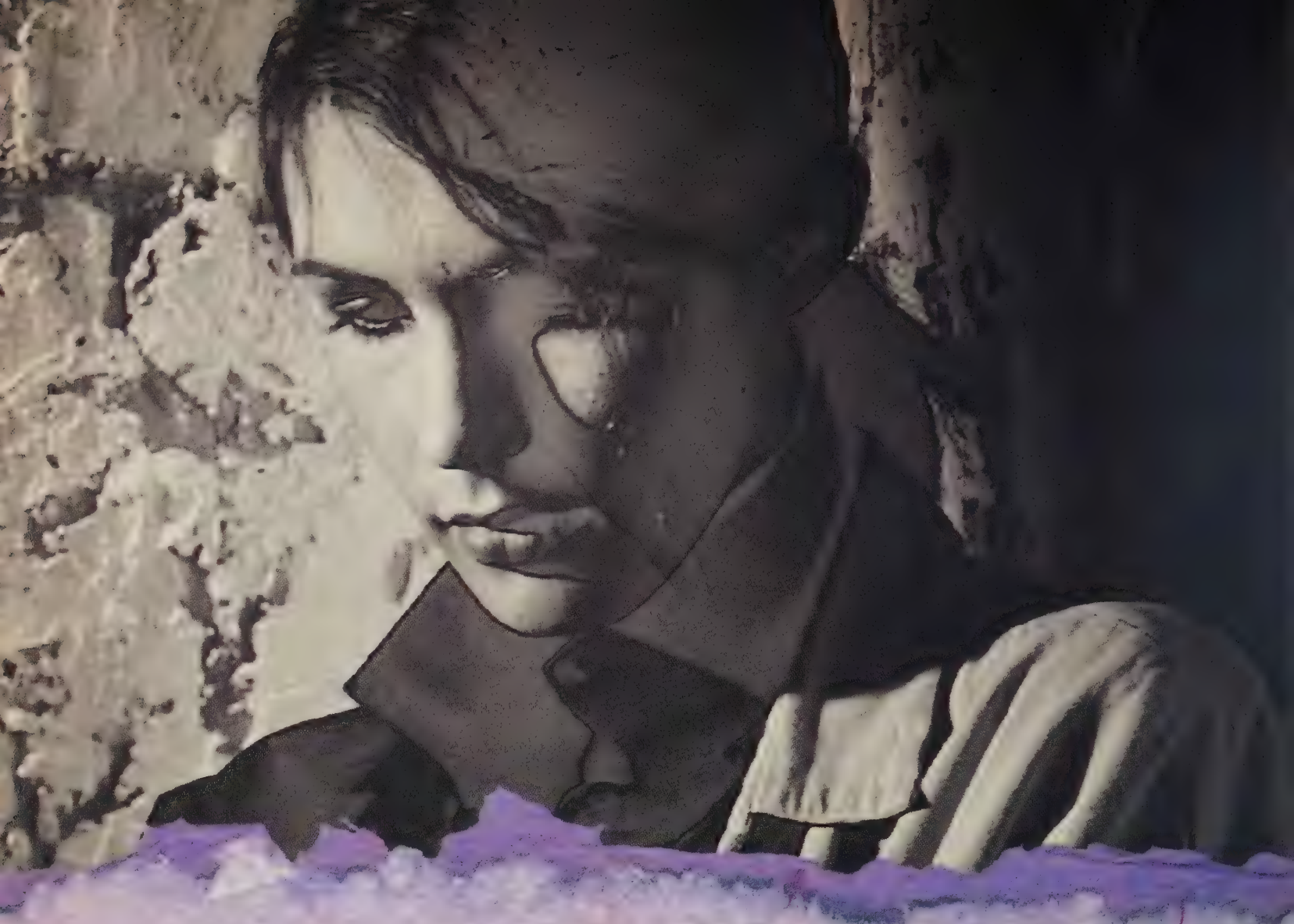
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This bit of old-time Canadian winter activity pictured on this month's Journal cover is a scene from King's Landing, New Brunswick. (Industry, Science and Technology Canada Photo.)

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FACE FACTS...

Orolabial herpes can be more than just a "cold sore."

Recurrent herpetic lesions of the lip and mouth are of immediate medical concern in immunocompromised patients with nonlife-threatening cutaneous herpes infections, and can be the cause of long-term psychosocial problems.

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Never Better!

Gordon Fairweather, long-time Member of Parliament representing Fundy-Royal (New Brunswick), and now Chairman of the Immigration and Refugee Board, tells the story of a group of tourists visiting King's College of Cambridge University, in England. The tourist group had enjoyed the privilege of hearing the College Choir, one of the most famous in the world. At the conclusion of the concert — in which the range and beauty of the human voice could only have been surpassed by a choir of angels — the tourists were exchanging awed expressions about magnificence and grandeur.

One tourist when asked what he thought of the Choir, replied, "Not bad I guess". Startled by this lack of enthusiasm the poser of the question hesitated for only a moment, then asked, "And what part of Canada do you come from?"

Sad but true; all too often the solid Canadian characteristic displays ultra conservatism, self-deprecation and contained self-confidence. We tend to pull ourselves down, to each other and to the rest of the world. Rather than affirming magnificent achievements we proclaim, "Not bad I guess."

More than 20 years ago, a provincial dental association recruited a new executive director, (a non-dentist, by the way). This bright young man brought to his local group, and eventually to his many dental confreres across Canada, a seldom heard expression. When asked the usual, "How are you today?", the executive director proclaimed — and always with a friendly direct smile and confident demeanour — a sincere and enthusiastic salutation — "Never better!"

The effect upon the mundane recipient is instantaneous. Most often there is initial surprise and incredulity. Always however, there is immediate reaction and reciprocation. The power of "Never Better!" is infectious. It elicits a response elevating a bored, rote-like, "Not bad I guess", into spirited animation.

Standing on the threshold of a New Year the Canadian Dental Association is *not* saying, "Not bad I guess". Looking back over past the Association surveys its inventory of accomplishments with justifiable pride. As a National organization it has exceeded all expectations and objectives.

In less than one generation the CDA has played a leadership role for Canadians attaining quality of life. CDA's fluoridation advocacy and prevention program has literally wiped out more than 50 per cent of all dental decay in the nation. Canadians know more about dental health today than ever before in history. More Canadians are seeking dental health care than ever before imagined.

Evidence indicates CDA's five year old Dental Awareness Program has resulted in at least a nine per cent increase in patient attendance at dental offices. That nine per cent extrapolates into an astounding additional \$34,932,240 per year (averaged) in Canadian dental income. This certainly deserves more than "Not bad I guess!"

Consider only a few of CDA's other recent successes:

- taxation dialogue that is the envy of other organizations;
- a 1989 Convention breaking all records;
- Federal government relations that previously were non-existent;
- Third Party Committee initiating innovative, imaginative dental plan management such as Dialogue in Dentistry and Electronic Data Interchange;
- and on, and on.

An injustice would be perpetrated if the Canadian Dental Association modestly acknowledged, "Not bad I guess". Much closer to reality, looking back proudly, and assessing the coming year would be "Never better!"

P. Ralph Crawford, BA, DMD

Editor: Journal of the Canadian Dental Association

Predicting Dental Human Resource Needs

(Bring Out the Crystal Ball)

In 1986, the CDA inaugurated the Professional Resource Utilization Committee. Chaired by Past CDA President, Dr. Bradley Holmes, the Committee was requested to investigate and review numbers graduating from Canadian dental faculties in relation to future resource requirements. Conscientious efforts of the Committee and the cooperation of the faculties has produced an approximate 30 per cent decrease in the number of dental undergraduate positions across Canada.

We are pleased the CDA has been so successful. Or are we? There are indications such reductions may not have produced the desired results. They may even have contributed to other problems.

Looking abroad, Sweden had a surplus of dentists and predicted poor employment prospects for the 1980s. Enrolment quotas for Swedish dental programs were cut in 1984. Recently however, applications for undergraduate dental education have fallen and on two occasions below the number of places available. Today 50 per cent enrolled in Swedish dental schools are foreign students. It is predicted Sweden will experience a shortage of dentists in the 1990s.

Could this happen in the United States or Canada? It is possible. Elsewhere in this Journal a news story comments on a study by two American investigators, Dr. John W. Reinhardt of the University of Iowa and Dr. Chester Douglass of Harvard's School of Dental Medicine. They predict by the year 2010 the United States will require more practicing dentists than ever before.

In Canada there are signs the demand for admission to our faculties of dentistry may be declining. Although the applicant pool remains well in excess of places available, especially in Ontario, the number of candidates applying for the CDA Dental Aptitude Test is slowly diminishing. In the U.S. the ratio of applicants to available places has fallen as low as a shocking 1:1 or less. This compares to about 5:1 for most Canadian schools.

While available places in Canadian schools have gone down, Canadian enrolment in U.S. schools has gone up. For the 1990 academic year, 162 Canadians are enrolled in American Schools — 76 in first year, 86 in second year. Interestingly, the number of Canadians in U.S. schools corresponds almost exactly to the reduction of student places at the Universities of Western Ontario, Toronto, McGill and Alberta. This is occurring despite tuition in some U.S. faculties as high as 20,000\$ US per annum.

Upon completion of a Canadian program, any dental graduate may apply for a National Dental Examining Board Certificate. As the NDEB recognizes the CDA accreditation process, certificates are granted to Canadian faculty graduates without examination (providing the application is received before March 31st of the graduating year). In 1989, desiring the portability privilege provided by the NDEB certificate, more than 90 per cent of Canadian graduates paid the required \$400 fee.

For the dental graduate from outside of Canada, (including the U.S.), requesting a Canadian licence, the NDEB requirement is successfully completing a three section comprehensive examination. The numbers in this category of NDEB applicants have increased considerably — from 387 in 1985 to 590 in 1988. Nor is the situation likely to improve in the near future because the number of Canadians seeking dental education in the U.S. continues to expand.

In the 1989 school year the University of Manitoba reduced its first year dental student enrolment to 20 from 25. At the same time Manitoba accepted six second year transfer-students from the University of Detroit. No doubt the progress of these students will be closely monitored in Canadian academic circles. There could be pressure for Canadians in American schools to be granted exemptions from the NDEB examinations. Also, the NDEB may be requested to have Canadian graduates take NDEB examinations. The entire process of accreditation, eligibility, certification and qualification as it relates to dental needs and resources requires further investigation.

People inside and outside the profession are beginning to ask questions. Should Canadian graduates be required to take NDEB examinations? Are Canadians only attending U.S. schools because of reductions in Canadian enrolment? If space is not available in Canada, can I afford to have my son or daughter obtain a dental education in the U.S.? Did they go to the U.S. because they are weak academically, or simply because places are available and they can afford the high tuition?

In short, it is possible the reduction of enrolment in Canadian schools has given rise to a number of other questions and concerns. It may or may not have been the right move in terms of future dental resource requirements. The Swedish experience suggests studies of resource-needs do not satisfactorily answer all the questions. Any one familiar with the Ontario Manpower studies of a decade or so ago which predicted a huge surplus of dental hygienists realizes they can err.

Personnel resource utilization is a priority CDA topic. It will be discussed at a special session of the Interim Board of Governors meeting in March. CDA is also placing considerable emphasis upon epidemiological studies as basic indicators of underlying trends and needs in oral health care. One such study, directed by Dr. Gordon Thompson, former Dean at Alberta's Faculty of Dentistry, has been funded by the Federal National Health Resources Development Program.

Predicting the future of dental resources will never be a simple task. It needs more than a crystal ball. CDA in cooperation with corporate bodies, dental faculties and all other interested organizations, continues to investigate and explore every possible avenue. The future of Canada's oral health depends upon our endeavors.

Kevin L. Roach, BSc, DDS
President of the Canadian Dental Association

Calgary vote gives fluoridation a slim margin of approval

In a municipal plebiscite on October 17th the voters of Calgary approved fluoridation of drinking water by the narrow margin of three per cent. Fluoridation had been rejected on four previous occasions. Of the nine metropolitan centres in Canada, only Montréal and Vancouver have not yet accepted fluoridation.

Any fluoride plebiscite is emotional. It is seldom an issue in which newspapers take a positive stand. They tend to avoid the controversy. The Calgary Herald is therefore to be congratulated for their editorial on June 28, 1988. They dared "to tell it like it is" and undoubtedly their courage had considerable influence in Calgary's positive move toward better oral health for all citizens.

We are privileged to reprint The Calgary Herald editorial (by special permission).

"Rotting Teeth or Fluoride?"

Voters in this city have not listened to reason, logic, or common sense when the question of fluoridation has come before them.

Maybe they'll listen to their children.

Today, a city council committee, studying whether to put fluoridation on the civic election ballot for the fifth time, will hear a submission from children — students at John G. Diefenbaker Senior High School.

It is these children and their younger siblings who have been most affected by their parents' lack of sense in turning thumbs down on fluoridation in four plebiscites. Yet the evidence is incontrovertible: Thanks in part to the widespread use of fluoride, half of the school children in the United States have never had a cavity.

There is no reason for Calgary children to be growing up with rotting teeth. And no reason for them to suffer needlessly because their bone-headed parents can't collectively agree to add fluoride — a naturally occurring nutrient — to the water supply.

Every family now subjecting children to the pain of toothaches or the discomfort of the dentist's drill should consider the remarkable findings released last week by the National Institute of Dental Research in Washington.

Of 40,000 children studied, 49.9 per cent had no decay in their permanent teeth, as opposed to 36.6 per cent in a similar 1979-1980 study.

The biggest advances have been made in the under-10 age group. Most of them are entirely cavity free while only 16 per cent of those 17 years old are cavity free. Of course, improved dental care has contributed to these gains.

But, decay between the teeth — the kind that can be fought effectively with fluoride treatment — has dropped by an amazing 54 per cent. Decay on flat, chewing surfaces of teeth has declined by 32 per cent from 1980.

Fluoride, either occurring naturally in ground water or added to community supplies, helps teeth by promoting the reconstitution of surface minerals in damaged tooth enamel, interfering with the conversion of sugars to acids in the mouth and prohibiting the growth of harmful bacteria, says Dr. James Carlos, chief of the institute's epidemiology branch.

In the face of such evidence, the committee meeting today should have little to discuss.

The committee and council should unanimously agree to spend the \$20,000 to put this on the 1989 civic election ballot.

While there is no national data in Canada comparable to the U.S. study, it is known that only 40 per cent of Canadians have fluoridated drinking water, compared to 60 per cent in the U.S.

It's time Calgary joined the enlightened percentage. Naysayers who would deny little children the benefits of safe, fluoridated water, should be over-ruled by common sense.

Because the victory was a narrow one — 53 per cent — citizen groups are making attempts to overturn it, a Calgary supporter told the Journal. However, there appears to be general legal support for the measure.

Actual fluoridation will not begin for about a year, pending technical preparation and the necessary municipal legislation supporting the measure. Δ

FDI names new executive director

Dr. Per Åke Zillén of Sweden will be the new Executive Director of the Fédération Dentaire Internationale (FDI). He was chosen by the FDI Council during a meeting at FDI's Annual World Dental Congress in Amsterdam on 30th August.

Dr. Zillén, aged 49, will take up his duties at FDI Headquarters next April, working alongside the present Executive Director, Dr. J.E. Ahlberg, until he retires in July 1990.

Some 80 applications from senior dentists around the world were considered by the Search Committee chaired by FDI President, Carlton H. Williams, which was charged with finding a successor to Dr. Ahlberg. A shortlist of candidates was presented to the Council in Amsterdam.

From 1981 to 1989 Dr. Zillén has been the Head of the Dental Division of Praktikertjänst, Sweden's largest health care enterprise providing medical and dental care. As originator of Praktikertjänst's further dental education programmes, he has a particular interest in this field, as well as wide experience in the administration of dental health care.

Dr. Zillén left private practice to become Editor of the Swedish Dental Association Journal from 1970-1974. He is also author of many publications, as well as founder of the leading dental publishing house of Scandinavia, of which he is now president.

In addition to his activities as author, editor and publisher, Dr. Zillén's interest in Communications and further education has led to extensive lecturing in Scandinavia and at FDI Congresses.

In addition to being a Supporting Member of the FDI, Dr. Zillén has served as member of the Board of the Swedish Dental Federation and is a member of the American Academy of Dental Group Practices.

Deeply and broadly involved in the dental profession, the FDI Executive Director Designate has voiced a strong desire to play an active role in international organized dentistry, and to direct his considerable energies and talents as dentist, administrator, communicator and leader to the benefit of the Federation and its members in the 1990s. Δ

Gloomy outlook for practising dentists debunked by US professor

The services of practicing dentists will be needed in the next 40 years more than ever before says a University of Iowa College of Dentistry professor who has studied the future of dentistry.

The study by Dr. John Reinhardt, UI associate professor and head of the dental college Department of Operative Dentistry, concludes that dental services will be in great demand to treat decay in aging teeth as people retain more of their natural teeth.

Reinhardt's conclusion published in Operative Dentistry journal (1989, Vol. 14, p. 114-120) draws a more optimistic view of the future of dentistry than previous predictions, which projected less need for dental work and an abundance of dentists vying for fewer patients. Reinhardt's projections, coupled with a nationwide decrease in dental school enrollments, point to increased work loads for dentists in the future.

The UI findings are based on a two-year study of three factors: The number of natural teeth, and the number of cavities in the adult population; and life expectancy rates. Previous studies established that because of widely used fluoridation techniques, better oral hygiene habits and advancements in dental care practices, youths have fewer cavities and fewer teeth must be extracted. "At the same time, *the general population is living longer and as people age their gums recede which makes natural teeth more susceptible to decay*," he says.

From existing data and U.S. Census Bureau population estimates, Reinhardt projected the amount of dental work that will be needed in the next 40 years based on "conservative" figures of natural tooth retention. For example, he predicts that in the year 2030 people who are 65 to 74 years old will retain 15.3 teeth as compared to 11.4 teeth retained by the same group in 1981 and 7.4 teeth in 1960.

According to Reinhardt, dentists will see an increase in cavities because people are retaining natural teeth longer rather than obtaining dentures as in the past.

Rate of decay increasing

"Actually, the rate of decay is going up as people get older, contrary to what was previously thought and taught in dental schools — that decay goes down with age because natural teeth were pulled and replaced with dentures and bridges," Reinhardt explains.

Reinhardt believes his projections are conservative because they are based on current studies of tooth retention while the profession continues to make strides in saving natural teeth.

"I really think that more dental work will be required than I have estimated because of the continuing increase in the retention of natural teeth, but to allay any criticism about inflated projections, I used only the current statistics which I believe are conservative figures."

Other factors contributing to Reinhardt's optimistic view of the future of dentistry are an increase in the number of people visiting dentists over past decades and more people seeking cosmetic treatment. The number of patients who sought treatment within 12 months of being surveyed is up from 47 to 50 per cent of the population in the early 1970s to 57 to 63 per cent in 1986.

"People are realizing that the benefits of dentistry outweigh any minor discomfort," he notes. "And people are spending more on dental care, including cosmetic work."

"There are so many negative predictions that have come out in the past few years regarding the economic future of dentistry that are just unfounded. I believe the real heyday is yet to come," Reinhardt says.

Reinhardt's study was funded by a Robert Wood Johnson Health Services Scholarship which he received to complete a training program at the Harvard School of Dental Medicine. Also participating in the study was Chester Douglass, associate professor and head of the Harvard Department of Dental Care Administration. Δ

Dental hygienists adopt infection control policy

At the 1989 annual meeting of the Board of Directors, the Canadian Dental Hygienists' Association adopted the following infection control policy.

"The Canadian Dental Hygienists' Association recognizes that dental hygienists have a responsibility both professionally and morally to offer dental hygiene care to all individuals, including those who have, or may have, been exposed to any infectious disease."

The CDHA has also adopted, by resolution, the Canadian Dental Association's recommendations for Infection Control Procedures and will provide this information to its members through publication in the CDHA Journal, *Probe*.

Mis-identification

The caption lines under a color photograph on Page 851 of the November, 1989, Journal (JCDHA Vol. 55, No. 11) did not appear to indicate the activity in the photograph. Also, Dr. Michel Jahjah, CDA Convention General Chairman, was not in the photograph, although the caption stated he was. The original photograph designated for this position did justify the caption, but the preferred photo (which appeared) arrived late and was substituted. However, the caption lines were not revised to suit, in our haste to meet the printer's deadline.

The intended outline for that photograph (centre, right, on Page 851) as is follows: The dental supply firm, Healthco, purchased a new Honda automobile which was awarded to a lucky Convention registrant as an exhibition hall attendance prize. That lucky registrant, Dr. R.G. Baynes, of Surrey, B.C. is seen in his new car, as Mark Biro, Honda Western Zone Manager (centre) and Normand Sénécal, Vice-President of Healthco, look on. Δ

High utilization of dental services by older adults

An item in the American Dental Association News of October 1989 reported a higher utilization rate amongst senior citizens than previously expected. According to a study conducted by Dr. Lawrence H. Meskin of the University of Colorado dental school, older adults are beating the profession's demographic projections to the punch by using more dental care right now.

"Dentists should be aware that older Americans make up a significant amount of their practice income already," said Dr. Meskin. "I found that older adults are perceived by many practitioners as a population group that seeks care less than other groups and has less money to spend on care. In fact, just the opposite is true."

The study indicates that not only are older adults seeking dental care as much or more than other age groups, they have less dental insurance coverage and are paying about 75 per cent of their expenses out of pocket.

"We want to get the word out to dispel the notion that elderly people don't visit the dentist," said Dr. Meskin. "They seek care at a rate equal to or greater than other age groups. They seek care often without insurance and spend their own money for treatment. Practitioners should evaluate whether they are giving enough attention to this age group in their practices."

Presented in Dublin, Ireland, at the June meeting of the International Association for Dental Research, the study shows increased use of dental care is now significantly affecting dental practice, said Dr. Meskin. And those numbers are projected to keep growing over the next few decades.

The study, supported by the American Fund for Dental Health, examined one-day output questionnaires sent to 20 per cent of general dentists from five states. Nearly 750 questionnaires, which recorded visits of about 10,000 patients and performance of some 21,000 procedures showed the percentage of dental visits by people age 65 and over exceeded the percentage of the total population for that age group in all states. Data showed older adults spent more than average for dental care than all age groups combined. △

Meet the CDA Headquarters Staff INFORMATION SERVICES



Seated, from the left: Mrs. Kimberley Allen-McGill, Information Officer, and Ms. Rebecca Dufton, writer (CDA Communiqué). Standing, from the left: Mr. Luc Pinard, Customer Services Clerk, Mrs. Christiane Dowsing, Secretary, Information Services, and Mrs. Winnifred Mobley, Student Affairs Secretary and DAT Coordinator.

Mrs. Kimberley Allen-McGill manages the day-to-day activities of the CDA Dental Awareness Program and the Dental Health Month campaign. As Information Officer she maintains contact with the media, arranges spokesmen on dental matters, and on occasion, arranges interviews. She also gathers and provides information as requested, both to the general public and the dental profession. In addition, she manages the CDA public (dental) education materials program.

Ms. Dufton produces CDA's Communiqué newsletter every two months, researching the information and writing articles for it. She also prepares and writes brochures and compiles fact sheets and other documents for the Information Services section. On occasion, Ms. Dufton researches and writes articles for this Journal, at the request of the Journal Editor.

Mr. Pinard mans the CDA order desk for patient education and professional development literature. He solicits printing and production quotes for materials and processes orders received by mail or telephone. In addition, he maintains the inventory of materials at desirable stock levels.

Mrs. Dowsing provides secretarial and administrative support to the Information Services section. She responds to routine information inquiries from the general public and the dental profession. She records minutes of meetings and performs all administrative tasks related to the Information Services Committee.

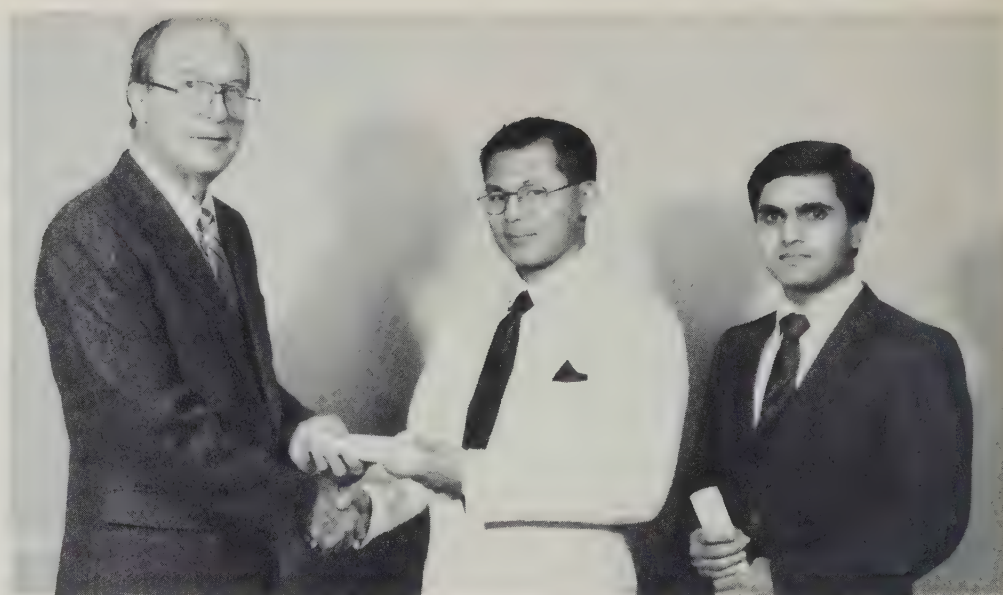
Mrs. Mobley, although technically not a part of the Information Services group, does provide a considerable amount of information in response to dental students and would-be dental students. She is principally involved in providing administrative and secretarial support to the Director of Communications. She co-ordinates all matters pertaining to Dental Aptitude Tests and works closely with the Student Affairs Committee. △

Canadian student wins top international research award

Alan Kwong-Hing, a 1989 dental graduate from the University of Western Ontario, has won the Hatton Award, the top international prize for dental research by an undergraduate student. The competition was held recently in Trinity College, Dublin, Ireland, at the annual meeting of the International Association for Dental Research. Dr. Kwong-Hing's entry in the competition, entitled "Effects of Magnetic Resonance Imaging (MRI) on the Formation of Mouse Dentin and Bone", was based upon work he did part-time during his dental studies and enabled him to qualify for a Master of Science degree. His study was one of the first to demonstrate an effect of MRI on tissues that are rapidly growing. His victory extends a remarkable string of Canadian success stories over the past three years. Canadian Award winners have gone on to win two of a possible six Hatton Awards and two of six times have been runners-up.

Dr. Kwong-Hing's advisors in the project were Drs. H.S. Sandhu, M. Kavaliers, P.S. Prato and J.R.H. Frappier of the University of Western Ontario. Assistance for his travel to the competition was provided by a \$500 travel grant from Colgate-Palmolive Canada. Dr. Kwong-Hing has now begun a combined PhD-Diploma in Periodontics program at the University of Toronto.

Also representing Canada in the Competition, and also the recipient of a Colgate-Palmolive travel grant, was Gajanan V.



The photograph depicts the presentation of the Canadian Association for Dental Research Student Research Awards to the two students; Kwong-Hing was the winner in the Undergraduate category and Kulkarni in the Graduate category. This presentation occurred at the annual business meeting of the CADR in London, Ontario, prior to the IADR meeting in Dublin where Kwong-Hing won the Hatton Award.

Kulkarni, whose research was entitled "Restriction Endonuclease Analysis for the Study of Transmission of Mutans Streptococci". His research, performed under the supervision of Dr. James Sandham at the University of Toronto, developed a more effective method for tracing the spread of *Streptococcus mutans* infections in human populations than had previously been available. Dr. Kulkarni has recently begun to study toward a combined PhD-Diploma in

Paedodontics at the University of Toronto.

Dr. Kwong-Hing had qualified to represent Canada by winning the Canadian Association for Dental Research Award in the Undergraduate Category, which carries a cash prize of \$200, while Dr. Kulkarni had won the Graduate Category and \$500. The latter two awards were sponsored by Procter and Gamble, Inc. Δ

Tribute Card is now available from CFDE

More and more frequently the Canadian Fund for Dental Education is receiving donations in honour of special occasions, such as anniversaries, birthdays, the opening of a new office, etc. etc.

In fact, there are so many occasions that we all want to mark in some special and appropriate way that the CFDE Trustees decided to develop a 'Tribute Card' to fill the growing need.

Next time you want to wish someone a speedy recovery, offer congratulations on achievement or express your appreciation for a favour — remember the 'CFDE Tribute Card'.

Then all you have to do is to send in the name and address of the person to be honoured and your contribution of \$10.00 or more. We'll forward a suitably worked card to him or her and send you a tax deductible receipt.

And most important of all — please remember that your gift will be used exclusively to promote ever improving dental health services for all Canadians.

Gifts should be forwarded to:
The Canadian Fund for Dental Education
1815 Alta Vista Drive
Ottawa, Ontario K1G 3Y6 Δ

CANADIAN FUND FOR DENTAL EDUCATION TRIBUTE CARDS



Remember that special occasion
with a tribute gift to the Fund.

CONTACT: 105-1815 ALTA VISTA DRIVE, OTTAWA, ONTARIO K1G 3Y6
TELEPHONE: 613-731-0493



Singapore will be host to 78th World Dental Congress

8-14 September 1990

The Singapore Dental Association is proud to host the 78th FDI World Dental Congress in Singapore from 8-14 September 1990. The organizing committee has spared no effort to ensure that it will be the most enjoyable and grandest dental meeting of them all.

Nestled amidst lush tropical foliage and beautiful gardens and blessed with year round fine weather, the modern city state of Singapore is an ideal venue for this prestigious congress. The venue of the congress will be at the Raffles City Convention Centre and the adjacent Marina Square Complex, a group of ultra-modern, luxury hotels strategically located at the city centre and commanding a magnificent view of the waterfront.

Singapore has been a favourite tourist location for many years. It is a vibrant modern city which has somehow retained the charm and beauty of the mysterious East. It is the melting pot of peoples and cultures from all over the world.

English, the major language

English is the major spoken language in this cosmopolitan city, so getting about is easy. Whatever your pursuits there should never be a dull moment. You could visit our world renown Jurong Bird Park, the Zoological Garden, the beautiful Chinese and Japanese Gardens and the enjoyable Sentosa Island. For those who love to shop, Singapore is one big shoppers' paradise.

Singapore is also a gourmet's delight. You could dine cheaply on local fare in open-air food stalls or enjoy the cuisines of the finest restaurants. Sample Malay satay, Indian curry and authentic Chinese cuisines. Sporting activities range from golf, tennis, squash and bowling at prestigious country clubs to fishing, sailing, wind-surfing and swimming at our famed East Coast Park and neighbouring islands.

Scientific program

The Scientific Program has been carefully selected to ensure that it will be both interesting and informative. Highlighting the program are a series of plenary 'theme' sessions and special symposia on the congress theme "New Frontiers in Dentistry". The theme sessions will feature a panel of international speakers who will discuss state-of-the-art issues.



- *Advancing Dentistry with Advancing Technology*
New diagnostic techniques in dentistry:
An overview
Computer-assisted design and fabrication of dental restoration
Advances in dental implantology
Lasers in dentistry
 - *Changing Concepts of Tooth Preparation*
The reasons for change
The influence of modern dental materials
The "minimal preparation" restoration
Management of the failed restoration
 - *Contemporary Endodontics*
The biological basis of endodontics
Contemporary endodontics techniques and instrumentation
The management of endodontic emergencies
Endodontic failures — is surgical management a possibility?
Four special symposia featuring world renowned speakers will discuss other current 'key' issues of significance in dental practice today.
 - Periodontics today
 - AIDS Hepatitis and infection control — The rational responses
 - Aesthetic dentistry with minimal tooth preparation
 - Modern practice management — The key to success
- In addition, there will be a comprehensive program of supporting sessions of free communications, table clinics, video

and poster presentations, limited attendance 'hands-on' courses, special programs of the Commissions, military conference, dental editor's conference and a number of satellite and affiliate meetings.

A Dental Trade Exhibition of over 300 booths will be held from 10-14 September 1990.

There will also be a one-day "New Product Exhibition" highlighting outstanding new products and the latest and most advanced innovations and inventions in dental "hi-tech".

Social program

The Social Program will be full and varied. Besides the usual Speaker's Reception and Gala Banquet there will be a Singaporean Carnival Night and a mystery island cruise and reception. Accompanying persons will be treated to a hands-on demonstration on batik printing, Japanese flower arrangement, oriental cooking and a visit to an orchid farm.

Pre-congress and post-congress tours have been planned to encourage delegates to visit the enchanting neighbours of Singapore. Hong Kong beckons with its myriad of fashionable shops and Chinese restaurants. Bali, the "Land of Gods" with its beautiful countryside and mysterious mountains and shimmering rice-fields, is rich in culture and traditional dances. Exotic Thailand, steeped in history and art, boasts of beautiful ancient palaces and temples, delicate Thai silk and an abundance of tropical fruits. A visit to Malaysia, our closest neighbour, is most refreshing. You can soak in the surf and sun at many excellent unspoiled beaches with crystal clear waters, or stroll among flower gardens in the cool mountain air of their famous hill resorts. Philippines' rich heritage and blend of Spanish and American influence, offer the young-at-heart a vibrant night life and endless adventures.

The Canadian Dental Association is organizing an official tour for CDA members attending the FDI Singapore meeting. TourCan Inc. has been appointed as its official agent. For more information, or to obtain a registration form for the FDI meeting, call toll-free across Canada:

TOURCAN 1-800-263-2995

(Ask for David)

(Toronto residents please call

416-787-0334) Δ

Dr. Benoit LaFontaine of Quebec City was named President of the Canadian Society of Public Health Dentists at that body's annual meeting in Vancouver in August.

Other new officers named for a two-year term at that session include: Dr. Jack Hann, of Vancouver, Past President; Dr. Neil Farrell of London, Ont., as President-elect, and Dr. Marcel Tenenbaum, of Montreal, as Secretary-Treasurer. △

Dr. Carl Hawrish was elected President of the Canadian Academy of Endodontics at its 25th Annual Meeting in Montréal, September 23.

A native of Wakaw, Saskatchewan, Dr. Hawrish now resides and practises in Edmonton, Alberta.



Dr. Carl Hawrish

Dr. Hawrish received his DDS and MSc in Oral Pathology from the University of Alberta and in 1977 was granted his Certificate in Endodontics from the University of Washington. He became a member of the Royal College of Dentists of Canada in 1984.

His appointments at the University of Alberta since 1969 have included positions as Associate Professor, Professor, and Chairman of the Department of Oral Diagnosis and Oral Surgery. He is currently Clinical Professor in the Division of Endodontics.

Other officers named at the meeting were: Dr. Barry Chapnick, Toronto, President-elect; Dr. Sharma Sinanan, Vancouver, Treasurer; Dr. Stephan Brayton, Halifax, Executive Secretary; Dr. Wayne Acheson, Winnipeg, Constitution and Bylaws, and Dr. Lorne Chapnick, Toronto, Past President. △

A TRIO OF DEANS!

A bit of history was achieved when three deans of the University of Manitoba's Faculty of Dentistry met during the 25th reunion celebration of the dental faculty's Class of 1964.



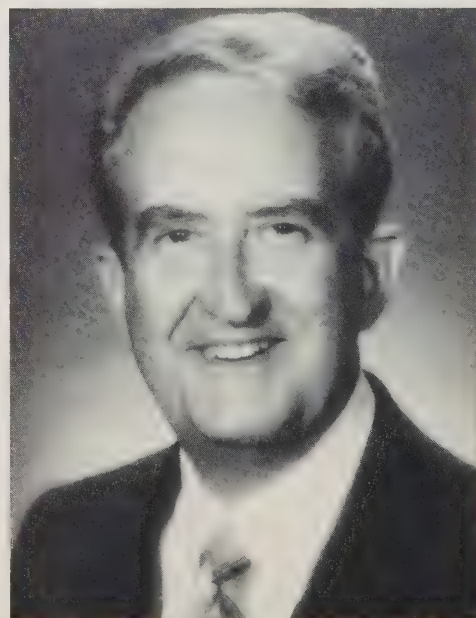
In the centre of the group is Dr. John W. Neilson, the founding Dean of the Faculty, who held the office from 1958 to 1977. On the right is Dr. Arthur Schwartz, Dean from 1977 to 1989. Left is the current Dean, Dr. Ronald Jordan.

Dr. Donald Woodside, Professor and Head of the Department of Orthodontics, Faculty of Dentistry, University of Toronto, has been awarded the degree of Honorary Doctor by Sweden's prestigious Karolinska Institute. The honor was awarded in Stockholm.

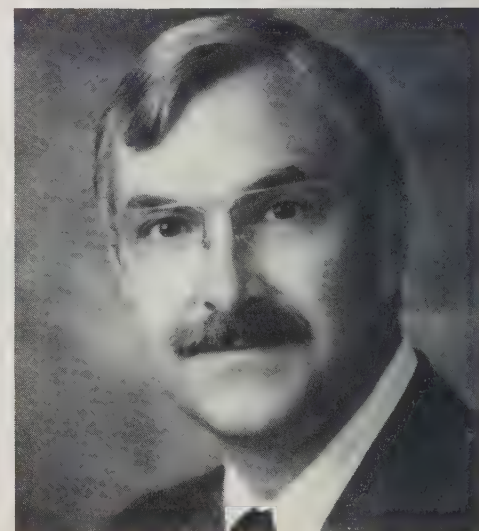
Dr. Woodside is no stranger to honors and awards since the beginning of his academic endeavors. While a dental student at Dalhousie University, he received the King's College Foundation Scholarship, the Kellogg Entrance Scholarship and the Gold Medal in Dentistry.

He has continued to gain distinction in his professional career. Since 1967 he

has been the presenter of some of the most coveted lectureships in orthodontics, including CDA's George Wellington Grieve Memorial Lecture, the Louise Jaraback Memorial Lecture, the Northcroft Memorial Lecture, the Strang Memorial Lecture and the American Association of Orthodontists' Mershon Lecture. △



Donald G. Woodside, BSc, DDS, MScD, FRCD(c)



Dr. W.G. Mabey

At the recent Annual Meeting of the Alberta Dental Association Dr. W.G. Mabey, of Edmonton, was named President.

Dr. R.D. Sandilands, of Edmonton, is the Past President, and other new officers for the 1989-90 term are: Dr. G.D. Harle, of Edmonton, is the President-Elect, and Dr. G.P. Greeves, of Calgary, is the Vice-President. △

Ottawa 1990:

Convention Countdown



The 1990 Ottawa Convention will be a grand celebration. Members of the Canadian Dental Association will celebrate a new membership benefit and the 75th anniversary of the Canadian Forces Dental Services.

The new membership benefit, in case you haven't already heard, is the opportunity to attend the 1990 Convention without payment of a registration fee. More than 10,000

dentists from across the country will have the opportunity to reap this benefit and participate in scientific sessions of unrivalled calibre.

Registration fees for non-CDA delegates will be \$145.00. This new trial membership benefit applies only to the 1990 Convention.

Making the new benefit work for you...

If you hold a CDA Membership and *pre-register* for the 1990 CDA Convention you will be entitled to attend the convention proper at no cost. That means, two days of lecture sessions on Monday, August 27th, Tuesday, August 28th and the morning of Wednesday, August 29th as well as access to the convention's exhibit hall and attendance to the Opening Ceremony.

All you have to do to get in on all the action is get your convention registration form into CDA Convention Headquarters before the deadline date of **July 10, 1990**. (Convention registration forms and Hotel Reservation forms will begin appearing in the CDA Journal's March issue.)

Pre-Convention Courses

In addition to the main convention agenda, the CDA will be offering limited-attendance 'pre-convention' courses and hands-on workshops.

Pre-convention courses will be held on Saturday, August 25th and Sunday, August 26th. Participation in these one-day courses will require separate registration as the cost is not included in the general registration fee.

The Canadian Dental Hygienists' Association

Participation by the Canadian Dental Hygienists' Association at the 1990 Convention has been confirmed and we look forward to developing a program of special interest to dental hygienists.

We are confident that, by working together, the CDHA and the CDA will be able to offer a stronger and more effective scientific program to hygienists attending the convention.

The Canadian Dental Assistants' Association

After an overwhelmingly successful Vancouver experience, the CDAA has again agreed to meet alongside CDA members. We look forward to sharing continued success with the dental assis-

stants and plan to develop a captivating program that will address concerns shared by dental assistants across the country.

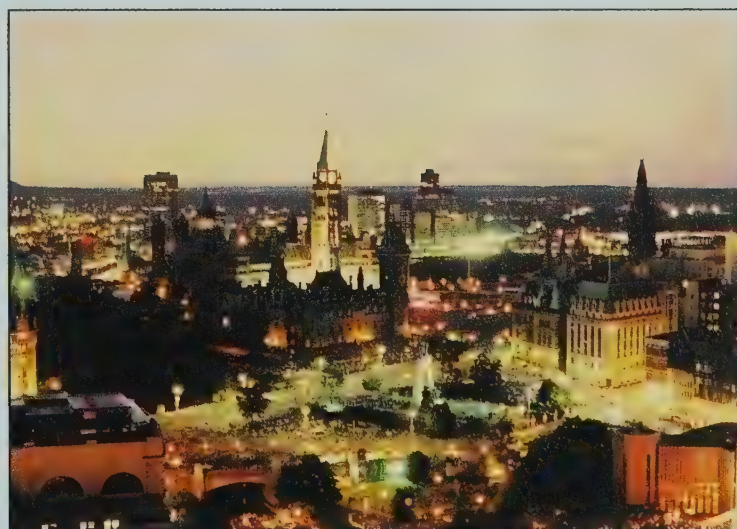
Celebrating 75 Years of Dentistry in the Department of Defence

Following a meeting with Brigadier-General J.F. Begin, Colonel David Jones and Major Tom Mountain of the Department of National Defence and Mr. Charles Hunt of the Royal Canadian Dental Corps (RCDC), it was agreed the 1990 Ottawa Convention would provide an excellent forum for dental professionals to salute the Department of National Defence's 75th year of providing dental services to Canadian Forces personnel.

In addition, the Canadian Forces Dental Services (CFDS) has agreed to provide one full-day program during the Ottawa Convention and it is committed to flavouring the Ottawa Convention with the spice of its unique diamond-anniversary celebration. The CFDS program is scheduled for Monday, August 27th and will feature four guest speakers including, two oral surgeons, a prosthodontist and a periodontist. CFDS and the RCDC will also be arranging a host of special activities for their members.

Join us in saluting the CFDS/RCDC contributions to the dental profession, in celebrating a new membership benefit, and in celebrating the participation of two organizations which are an integral part of the dental team — at the CDA's annual extravaganza — the 1990 Ottawa Convention — August 25-29, 1990.

*Dr. Michel Jahjah,
General Chairman
CDA Conventions*



The Capital comes alive after dark.
(Canada's Capital Visitors & Convention Bureau photo.)

Ottawa 1990

CDA Convention – A 'Capital' event

Ottawa, the heart of Canada, will be the site for the 1990 Canadian Dental Association Convention. The dawning of a new decade brings with it significant changes to the city which played host to the CDA's 1985 Convention. Make plans to attend. Bring the whole family and together, capture the pulse of a nation...

Things to do on 'The Hill'

Watch **Parliament Hill** explode with colour as the spectacular **Changing the Guard Ceremony** unfolds when you visit the symbol of Canada's strength and unity. In their scarlet tunics and bearskins, the Grenadier Guards and Governor General's Footguards fill the centre lawn of Parliament Hill with an evocative display of precision military drill and music. This magnificent display of pomp and pageantry is held daily at 10 a.m. during July and August, weather permitting.

From early June to the end of August one-hour outdoor guided tours are offered daily on The Hill. **Free guided tours** of 'Centre Block' give visitors an opportunity to discover the haunting beauty of the Peace Tower's splendid gothic architecture. You will be ushered through the seat of our nation's government — the **House of Commons** and the **Senate Chamber**, and invited to delight in the charm of the **Parliamentary Library**.

And don't forget to set aside at least one evening to experience the Hill's unique **"Sound and Light Show"**, a summer-long spectacle that transports you back in time. Cloaked in the night's darkness, a play of voices, sounds and music will enthrall you.



The Changing the Guard Ceremony — Daily on 'The Hill'.
(Industry, Science & Technology Canada photo.)

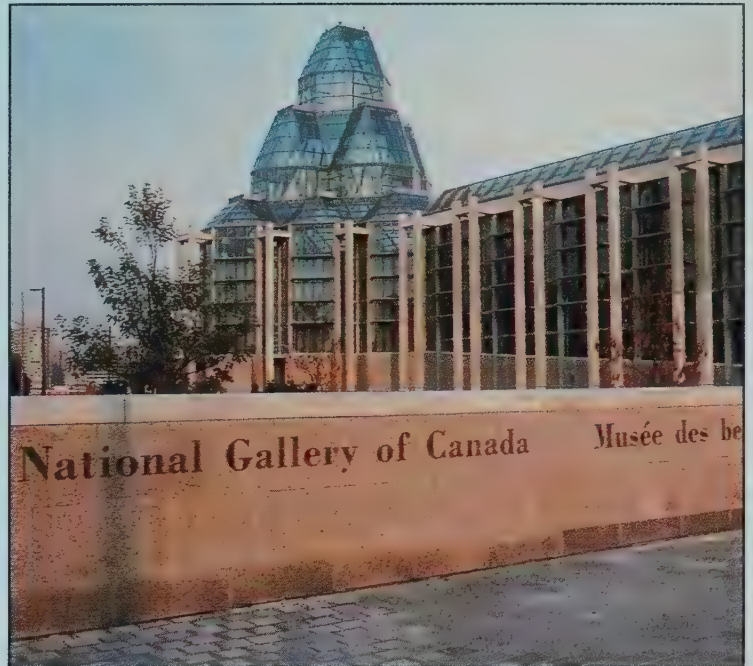
Ottawa 1990

Plenty of opportunity for the seasoned walker...

Just a short walk from the Hill wander amidst nearly a score of Canada's most significant historical and cultural attractions on **Confederation Boulevard**. Stretching 4.8 kilometers, the boulevard links Ottawa to Hull, her francophone neighbour and gateway to the picturesque **Outaouais region**. Dramatic viewpoints along the route offer a glimpse beyond the beauty of cherished landmarks into the very heart of our nation. A stroll along the boulevard also takes you past two of Canada's newest cultural institutions, the world-class National Gallery of Canada and the Canadian Museum of Civilization.

City attractions

If you have a few extra days to spare, make plans to arrive early and take in all the city has to offer. Visit the **Experimental Farm** and its exquisite **ornamental gardens** and its **arboretum**, drive along **picturesque parkways**, and take an afternoon stroll along the historic **Rideau Canal**. A host of national museums and embassies also await your discovery.



The new National Gallery of Canada.
(Industry, Science & Technology Canada photo.)



The magnificent new Museum of Civilization.
(Industry, Science & Technology Canada photo.)

Ottawa 1990

Discover Ottawa's sister city - Hull

If Ottawa's attractions seem 'old hat', plan to attend the 1990 Convention and use your extra time to savour the flavour of Canada's cultural diversity. You can follow the trail of great European explorers to the vibrant city of **Hull**, home to the new **Canadian Museum of Civilization**.

The Museum's striking architecture echoes the natural curves of the Canadian landscape and houses a cultural showcase of international stature. Its Grand Hall encompasses a wall of glass which frames a spectacular view of the river amidst an awe-inspiring life-size community of six Pacific Coast Indian houses. The museum also houses the world's only combination IMAX/OMNIMAX film theatre.

Nature lovers will be swept off their feet by 88,000 acres of natural beauty in the **Gatineau parks** - a popular haven for outdoor recreation enthusiasts. August's warmth will all but guarantee 1990 CDA Convention delegates have an opportunity to explore this cyclist's dream — miles of paved pathways winding through spectacular countryside.

Hull is a city of warmth and hospitality. It's alive and holds the popular joie de vivre that has made Québec a favorite travel destination.

Whether you've been to the Capital before or not, there is always plenty to do. Several national museums await your discovery:

join the **National Museum of Science and Technology** for a learning adventure; visit the **National Gallery of Canada** and view a wealth of national treasures; watch collector and bullion coins being struck at the **Royal Canadian Mint**; discover your natural heritage at the **National Museum of Natural Science**; or fasten your seat belts for a first class trip into the past at the **National Aviation Museum** which opened its new quarters in June 1988 — its walkway of time tells the story of aviation through a priceless collection of vintage aircraft.

Shops Galore

If you like the open-air enjoy the charm of Ottawa's **Byward Market** — a definite 'must see' for every visitor. Located only a hop away from the award-winning shopping complex, **The Rideau Centre**, the Byward Market bustles with activity. A farmer's market, outdoor flower stands, a craft mall, small boutiques, restaurants and outdoor cafés meld into an irresistible environment.

As tourism writer Kensel Tracy says, Ottawa is diverse and intriguing, it is cosmopolitan yet retains a rustic flavour. It is a city where visitors can meander from lush greenery and open spaces right in to the brisker pace of stylish shopping districts. It is a city for all tastes and all seasons and yours to discover in 1990 at the CDA Annual Convention - August 25-29, 1990.

Be there!



Picked fresh today, just for you — on the scenic Byward Market.
(Canada's Capital Visitor & Convention Bureau photo.)

A World Of Reasons To Use Trident With Xylitol To Help Fight Cavities.



We can give you a world of reasons to use Trident with xylitol as a pro-active addition to your patients' comprehensive cavity-fighting programs.

Those reasons are field trials conducted all around the globe that consistently show xylitol, the natural source sweetener, is an effective weapon in the fight against tooth decay.

Here is a brief summary of key studies.

MONTREAL, 1985-87: Caries Reduction

A 65% reduction in caries was achieved in a group of 274 children aged 8-9 given xylitol gum t.i.d.; compared to the same age group not given the gum. Both groups received identical preventive dental care throughout the study.

FINLAND, 1982-87: Long-Lasting Benefits

A 30-60% reduction in new caries was seen in a 2-year study comparing 172 children aged 11-12 given xylitol gum; to a control group of 152 children not receiving the gum. When continued for a third year, an overall 73% reduction was achieved.

HUNGARY, 1981-84: Xylitol VS. Fluoride

A 43% reduction in caries was achieved in children aged 6-11 who received xylitol in confectionery products; compared to 2 other groups using systemic fluoride in dentifrices or milk and water, respectively.

MICHIGAN, 1988: Reduction in Plaque

Three groups of students chewed 10 pieces of gum each per day, sweetened with xylitol, sorbitol or a xylitol/sorbitol mixture respectively. Two weeks later, the xylitol and xylitol/sorbitol groups showed a decrease in plaque from baseline values; the sorbitol group showed an increase.

FR. POLYNESIA, 1981-84: Sugar Substitution

Partial sugar substitution precipitated a 37-39% reduction in caries when 273 children given xylitol-sweetened between-meal snacks were compared to a control group whose snacks

did not contain xylitol.

Trident and Today's Dentistry

We are certain you will conclude from the evidence being gathered around the world that Trident with xylitol, used with proper oral hygiene practices, can help reduce tooth decay significantly. Trident is particularly useful after snacking, when access to a toothbrush or dental floss may be inconvenient.

We invite you to participate in our professional sampling program and recommend Trident as an aid in cavity prevention. With Trident's great, long-lasting flavours*, your patients have every reason in the world to comply with your advice.

*Spearment flavour does not contain xylitol.

For more data on Trident with xylitol, such as abstract reprints or case studies, write to: Xylitol Information, Warner-Lambert Canada Inc., 2200 Eglinton Avenue East, Scarborough, Ontario M1L 2N3



Another Reason To Use Trident With Xylitol: You Save 60% On Patient Samples!

Please send me the following Trident patient sample packs, each containing 10 boxes (maximum order, 5 sample packs):

- ☐ x Trident Assortment (Peppermint, Freshmint, Cinnamon, Fruit, and Bubble Gum)
☐ x Trident Fruit ☐ x Trident Peppermint
☐ x Trident Freshmint ☐ x Trident Cinnamon
☐ x Trident Bubble Gum

The price of each sample pack is \$40.00 (each contains 180 packages — regular value, \$99.00). Please add applicable P.S.T. (per pack: B.C. \$2.40; Sask. \$2.80; Man. \$2.80; Ont. \$3.20; P.Q. \$3.60; N.B. \$4.40; P.E.I. \$4.00; N.S. \$4.00; Nfld. \$4.80). Enclosed please find my cheque or money order payable to Trident Professional Plan in the amount of \$_____

NAME: _____

OCCUPATION: _____

ADDRESS: _____

CITY: _____

PROV.: _____

POSTAL CODE: _____

Send to: Trident Professional Plan, P.O. Box 490, Station A, Scarborough, Ontario M1K 9Z9. Please allow 4-6 weeks for delivery. Offer valid until June 30, 1990.

DENTAL HEALTH MONTH 1990

Bob is Back!

And he's set for the 90s
With t-shirts, posters, balloons
and other things that'll bring a
CELEBRATION OF THE SMILE
to your office and community.
And help make Canadians more
aware of good dental health.

High quality products.
Reasonable prices.
And Bob Live too!

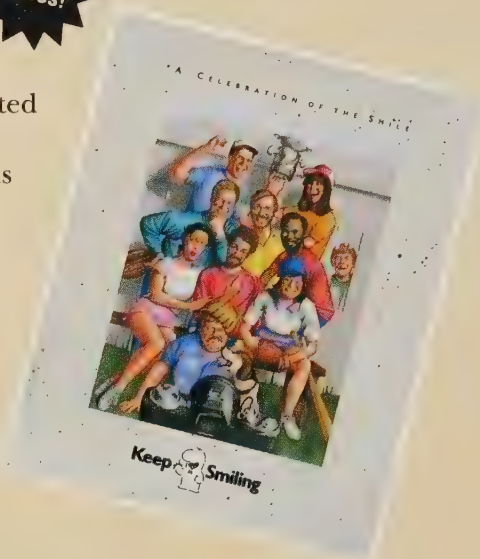
So bring on the decade.
And get ready to celebrate!

Celebration Poster



More than a poster - an original work of art! Created by renowned Canadian illustrator John Fraser, this full-colour print captures the spirit and warmth of "A Celebration of the Smile". It'll look great in your office or waiting room. Approx. 18" x 24"

CDA members: \$2.00
Non-members: \$4.00



Display Card

Put it on a waiting room table and on your office desk. Display it in the reception area. Give it to patients as a jumbo reminder of the Five Point Prevention Plan. Folds to 3 1/2" by 8".

CDA members: \$.60

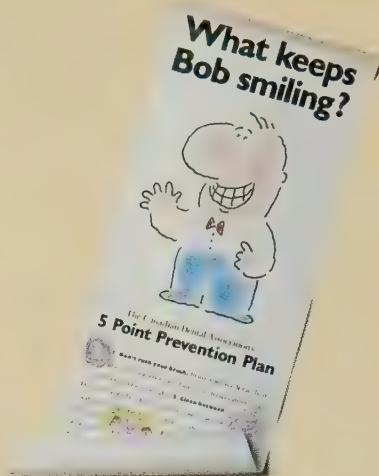
Non-members: \$1.20



Bob Poster

Size 12 1/4" x 36"

CDA Members: \$1.00
Non-members: \$2.00



Bob's Radio Commercial

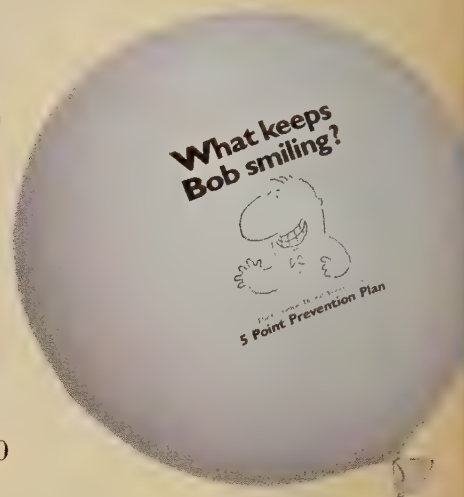
A 30-second public service announcement for use by all local and regional media relations organizers during Dental Health Month.

CDA members: \$8.00
Non-members: \$16.00

Display Balloon

A BIG balloon - it inflates to 40 inches around - for displays and exhibits.

CDA members: \$9.75
Non-members: \$19.50



Super Stickers

Just like regular stickers, only five times bigger!
11 3/4" x 2 7/8"

CDA members: \$.50
Non-members: \$1.00



BIG Bob - Special Order

And we mean BIG. He stands 5'3" tall. Put him in your waiting room and watch the big smiles he gets. This special order item will be made available if CDA receives sufficient orders.

CDA members: \$50.00



T-Shirt

One size—Extra Large.

CDA members: \$11.95
Non-members: \$23.95



Golf Shirt

Available in S, M, L, XL.

CDA members: \$26.95
Non-members: \$53.95

Sweatshirt

Also available in S, M, L, XL.

CDA members: \$29.95
Non-members: \$59.95



Balloons

Package of 50

CDA members: \$10.50/pkg.

Non-members: \$21.00/pkg.



Buttons

Package of 25

CDA members: \$9.00

Non-members: \$18.00

Celebration Planning Kit

For community organizers. This kit is brimming with ideas, activities and tips that will help you bring a Celebration of the Smile to your community this April!

FREE!

Magnetic Bob

Such an *attractive* character! Give him to patients to stick on refrigerators and filing cabinets.

CDA members: \$.90

Non-members: \$1.80



Stickers

A perfect giveaway to young patients (and to the young at heart!)

roll of 100

CDA members: \$7.00

Non-members: \$14.00

Price Reduced!

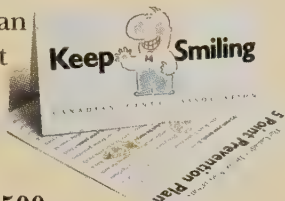
Appointment Cards

With the 5 Point Prevention Plan and space for the patient's next visit. Fits in their wallet.

Ask the CDA Order Section about personalizing these cards.

CDA Members: \$25.00 pkg. of 500

Non-members: \$50.00 pkg. of 500



Bob Live

New for Dental Health Month 1990! Bob is coming to life as a lovable full-size costumed mascot. He'll bring smiles and excitement to activities and events in your office or your community. For more information, contact your provincial dental association or the CDA.

Dental Health Month is a service of CDA's Dental Awareness Program, an ongoing campaign dedicated to helping all Canadians keep their teeth Good For Life.

Order your Dental Health Month materials today by mail or call our toll-free numbers.

1. By mail: Complete and mail the attached form along with your cheque, money order or VISA/MC number.

2. By phone: To place your order call:

1-800-267-6354 (Western Canada, Nfld. and Labrador)

1-800-267-6364 (Eastern Canada)

Please have your VISA or MasterCard number and expiry date ready.

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Can a dentist prevent being sued?

With the increasing complexity of the dental world we are seeing an increasing number of claims and many times the dentist may be named in a lawsuit only because at sometime or another he treated the particular claimant or was one of a number of dentists involved in a group treatment. The question arises as to how a dentist can prevent himself from being sued under such circumstances. The simple answer is he cannot!

The dentist, his insurer, his broker etc., have no control over the actions of the claimant and/or the claimant solicitor, who in general terms can sue whosoever they please. Although the claimant solicitor may consider one dentist the most likely target for liability he will many times name any and all dentists who have had any contact with his client so as to obtain the records. This is known as a "gunshot" action.

There are, however, several ways that a dentist can reduce or minimize his exposure to such a lawsuit and these are as follows:

1. **Maintain legible records** with clear notations and retain copies of written referrals or make clear notes of a verbal referral.
2. **Keep possession of original x-rays** and be aware of where they are at any given time. Preferably release only copies.
3. **Provide no information to verbal requests.** When verbal requests are received, insist that they be made in writing and also ensure that the person requesting the information has the authority to do so. Generally speaking, it is recommended that copies of dental records not be released before you have received legal advice on this point. Obligations vary from province to province.

Generally speaking, when an insured has been served with a statement of claim and/or a writ and a lawyer has filed a statement of defence, both parties to the action, the defendant and the claimant, will file a notice to produce documents.



By this procedure the party being served with the notice is required to set out in written form all documents in the possession of that party that are relevant to the lawsuit. Documents such as x-rays, dental charts, written reports, etc.

In addition, we feel the following remarks on records and writing will be of assistance:

1. **Records should be personal.** The person who actually performed the procedure should be the person who records that fact. This will assist in ensuring the accuracy of the record. Its credibility will be greater and thus its value as evidence in the defence of a lawsuit.
2. **Records should be signed or initialled.** All records must be clearly identified as to who made the entry. This is particularly important in large clinics where a number of people may be treating the patient. Signatures and initials must be clearly identifiable so that proper communication can take place



among the personnel in the case and treatment of the patient. From a legal defence point of view, the failure to identify those who recorded various information records may affect the credibility of the record and cause difficulty in obtaining the proper witnesses.

3. **Records should be signed by the person who made the record.** If one person makes an entry in the patient's record, that person should sign the entry, not the person who may have written it up. If a secretary or assistant records an event for the dentist, it is the dentist who should sign it, not the person who transcribed it. Failure to follow this rule can seriously affect the credibility of the record.
4. **Records should be written in ink or typewritten.** There should be no suspicion that a record has been erased. Entries in pencil are suspicious for this reason.
5. **Do not change pens in the midst of an entry.** This creates the suspicion that additional information was added in order to protect the recorder from liability in case of a lawsuit, rather than to record ordinary clinical information.
6. **Use uniform terminology.** Everyone throughout a dental office or clinic should use the same terminology. Failure to follow this practice may result in misunderstandings which could cause patient injury if the patient is treated by more than one person.
7. **Use uniform abbreviations.** Abbreviations should be avoided if at all possible because of the possibility of misunderstandings between dental personnel. However, at the least, all abbreviations should be uniform within a dental office or clinic in order to avoid patient

injury. New personnel should be instructed in the uniform abbreviations and terminology used.

8. **In a clinic or office, the system of recording should be uniform.** Failure to follow a uniform system may result in patient injury if the patient is treated by more than one member of the staff. This injury may be considered the result of negligence.
9. **Write legibly.** Notations that cannot be read or may be misinterpreted can cause patient injury to areas of treatment. This may be construed as negligence. Write accurately. Information regarding the patient's condition, what the patient



has consented to and what is being done must be complete and immediately understandable. Even if the individual who is to read the record is the same person who wrote it, this rule is vital. Errors are often made because individuals fail to understand what they themselves wrote. Errors in treatment with subsequent patient injury and claim for compensation can result.

10. **Record concisely.** Only essential information should be recorded to avoid misunderstanding and to ensure that the record will be read.
11. **Record chronologically.** Failure to record events chronologically with time and date noted may result in a record lacking credibility when placed in evidence before a court. It

may appear that certain events were added to the record not in the ordinary course of dental care, but in an attempt to fabricate a defence to a threatened legal action.

12. **Record immediately.** Failure to record immediately after the event being recorded takes place may result in errors which could be construed as negligence.
13. **Correct errors openly and honestly.** If an error is made in the record, do not erase, obliterate or destroy it. Cross it out with an arrow indicating the correction. The date and time of the correction as well as the original entry should be noted. A notation should be made that the original was recorded in error and is not correct. This will enhance the credibility of the record as evidence. An attempt to cover up errors in recording will

seriously affect the credibility of the record.

14. **Do not editorialize.** Dental records should contain only the facts and, where required, professional opinions. Extraneous comments have no place in the record and can reflect on the credibility of the person who made them as well as on that of the record itself.

Implementation of these guidelines cannot prevent a dentist from being sued or named in a lawsuit, but may well be of assistance in leading to his early removal from that suit as the clarity of his records will allow the plaintiff solicitor to determine early that he would have no liability. Δ

Roger Potts
Claims Manager
Special Accounts Branch
Guardian Insurance Company of Canada

CDA Retirement Savings Plan

Unit values: (Funds are valued weekly)

Fund	Unit values as at	
	November 30, 1989	October 31, 1989
Bond & Mortgage Fund	70.90029	70.83070
Common Stock Fund	17.13177	17.04873
Money Market Fund	47.18492	46.75809
Balanced Fund	29.94123	29.85361

G.I.C. Fund

Term

Term	*Interest rates as at	
	November 30, 1989	October 31, 1989
1 yr	11.25%	11.35%
2 yr	10.75%	10.75%
3 yr	10.70%	10.60%
4 yr	10.70%	10.60%
5 yr	10.70%	10.60%

(*rates subject to change without notice.)

Total Assets (Market value) of the Plan as of:

November 30, 1989	October 31, 1989
\$117,119,993	\$116,422,541

For further information:



CDA RSP

Write:

CDSPI

Retirement Services Dept.
Suite 600
2 Lansing Square
Willowdale, Ontario
M2J 4Z3

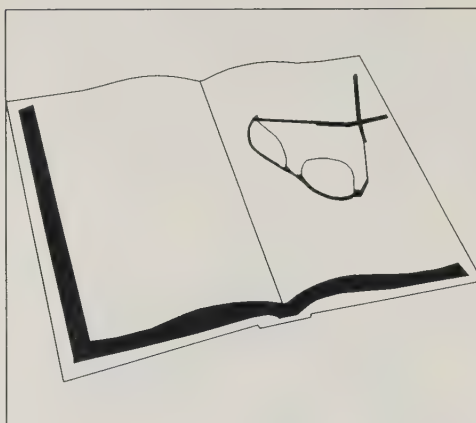
or phone, toll-free:

Western and Atlantic Canada
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only 1-800-268-5418
Quebec and Ontario, (except Area
Code 807) 1-800-268-3411
Metro Toronto Area 497-7117

Sterilization and Disinfection

Sterilisation et désinfection

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One copy of the above package of articles is available for \$5.00 to all CDA members and for \$10.00 to non-members. (Ontario residents, please include 8% sales tax.)

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ORAL CANCER: CLINICAL AND PATHOLOGICAL CONSIDERATIONS

B.A. Wright, J.M. Wright and W.H. Binnie

CRC Press, Boca Raton, Fla., U.S.A., 1988 (186 pages).

The subject of this book is squamous cell carcinoma of the mouth and it does not cover any other type of neoplasm. Squamous cancer is, of course, the predominant malignancy of the mouth and by far the most important. The editors are all oral pathologists but the contributors include surgeons and radiation, medical and dental oncologists.

The subject matter is broken down into chapters on epidemiology, aetiology, premalignancy, clinical and histological aspects, patient assessment, treatment, complications of treatment and research aspects. With such a wide coverage of subjects, the book is clearly aimed at a general readership of all those professionally involved and interested in oral cancer, rather than being aimed at any one group of these, such as head and neck surgeons or oral pathologists.

The concept is stressed that cancer of the mouth is a complex problem which is managed best by a team approach involving, from the treatment planning stage onwards, all the different specialists contributing to the care of the patient. Few would disagree with this concept and multidisciplinary clinics are now widely established for cases of head and neck cancer.

Many parts of this book are excellent and the remainder is very good, to use the customary academic terms of assessment. The chapter on epidemiology gives an admirable account of the surprisingly large differences in incidence rates for oral cancer across the world, the uniquely high incidence of lip cancer in Newfoundland being noted. Such an unusually high incidence must surely indicate the presence of a causative factor active in the relevant geographic area, but none has so far been recognized in Newfoundland. The possible causal relation between home distilled apple brandy and cancer of the oesophagus and mouth in certain parts of France were derived from similar epidemiological studies.

The chapter on aetiology provides a thorough review of the present state of knowledge presented in a balanced objec-

tive manner with scientific scepticism being appropriately displayed.

The difficult area of premalignant oral conditions is well covered clinically and histopathologically, and the treatment for these conditions is discussed sensibly. The often thorny subject of the malignant potential of lichen planus is considered and Krutchkoff and Eisenberg's views are accepted as the current consensus.

Staging of oral cancer based on the TNM system is described in detail as is the STNMP system, with which the reviewer has no practical experience, in which the site(S) and pathology(P) of the lesion are taken as additional factors for staging purposes.

The indications, advantages and disadvantages of surgery, radiation and chemotherapy are discussed and a useful account of radio- and chemotherapies for head and neck cancer is given for the general reader. As all forms of cancer treatment produce some damaging side effects, these are described and their management. Perhaps something more might have been included on the complexities of dental care for the post radiotherapy patients.

Original studies are cited at the end of each chapter, a grand total of 908 references being given. The illustrations are well reproduced and informative, and the printing, and general layout is good.

This is an excellent book which will be of interest and value to all those involved in any way with oral cancer. The editors are to be congratulated.

This book was reviewed by:
Dr. J.H.P. Main
Professor, Oral Pathology
Faculty of Dentistry
University of Toronto

ORAL SURGERY

Gordon W. Pederson

W.B. Saunders, 1988
Price: \$50.50

The author has written a textbook directed towards the undergraduate student and general dentist that promises to be a valuable, frequently used resource.

The book in soft-cover is printed on good paper with clear accurate reproduction of illustrations and photographs that appropriately highlight the text. The textbook is well organized encouraging the student to develop an organized approach to Oral Surgery as well as allowing for

easy reference and review by the more experienced clinician. Each chapter is introduced by an outline that consists of its major headings and subtitles. Extensive use of "focal point boxes" help to summarize relevant terminology, significant diagnostic and management techniques, technical advances and background information.

Chapter 1, Asepsis for Oral Surgery, offers a timely review of the dangers associated with cross-contamination in the dental office. Pertinent pathophysiology as well as steps that can be taken to protect patients and staff are covered. In a subsequent chapter particular consideration has been given to the preoperative evaluation of the surgical patient and its role in identifying conditions that will require modification of treatment. Compromising conditions including coagulopathies and those affecting the cardiovascular, pulmonary, neurologic and endocrine systems are reviewed and suggested management protocols are established.

The sections on instrumentation, simple extractions, surgical removal of teeth, and complications of tooth removal are detailed and easy to read. The diagrams and photographs are exceptionally helpful in clarifying the techniques discussed. This reviewer is concerned that a push-pry or Class I lever force for application of the dental elevator is advocated by the author with only limited caution expressed. This technique in the hands of an inexperienced operator can generate very dangerous forces resulting in fracture of the jaw.

The chapters on preprosthetic surgery, management of oral pathology, orofacial infection, salivary gland disorders and orofacial trauma are informative and help the reader identify the responsibility of the general dentist as well as the role of the specialist. An excellent review of the diagnosis and treatment of temporomandibular joint disorders and dentofacial deformities is provided including recent technical advances.

Dr. Pederson should be congratulated on providing a comprehensive, concise, and affordable Oral Surgery textbook that can be used by the student or general dentist.

This book was reviewed by:
Dr. M. Aidelbaum,
Assistant Professor
Oral and Maxillofacial Surgery,
Faculty of Dentistry
University of Alberta.

The DAP Advisor offers information, ideas and advice to improve dentist/patient communication, raise awareness about good dental health, and help your practice become busier.

Phone Finesse Part 1: Incoming Calls

What's the most important piece of equipment in your practice? Your dental chair? Your x-ray machine? Your cavitron? Well, if you think about it, the telephone is probably your most important piece of equipment. It generates much of your business and enables you to build and maintain a thriving practice.

The person in charge of this crucial piece of equipment is your receptionist. She connects you with the outside world, and the opinion people form of your practice will largely be based on their impression of her. In fact, you might think of her as your public relations and sales representative. After all, she can instill confidence in potential patients, reinforce it in current ones and build the good will of both. And, to a large extent, that's what keeps you in business. And yet, good telephone skills are so simple and so basic that they are often easy to overlook. What follows is a list of 10 skills that every receptionist should master. While they may seem obvious to you, remember, they probably won't to someone who has never used them.

10 Basic Phone Skills or: What Every Receptionist Should Know

1. If you can, let the phone ring twice before you answer. That will give you a chance to take a breath and think about what you're going to say. Three rings is probably okay too, but any more than that and the person on the other end might become impatient and perhaps even hang up.
2. Identify the doctor (or name of practice) and yourself. For example, say "Good Morning, Dr. Anderson's office, Christine James speaking."
3. Smile. It will make you feel cheerful and help you convey that feeling to the person at the other end.
4. Ask for the caller's name early so you can use it during the rest of the conversation. It will help establish a personal connection with the caller.
5. Make sure you have a pen and paper handy to record any information.
6. Choose your words carefully. What you say is as important as how you say it. If the dentist is unavailable and the caller wants to speak to him/her, don't say "The doctor can't talk to you now. He's busy." Instead, say, "I'm sorry, the doctor's with a patient right now. Can I take a message (or, can I help you with something?)"
7. If you have to interrupt a conversation to answer another line or talk to someone in the office, excuse yourself and give the reason for the interruption. Say, "could you please hold a moment while I get the other line?" or "I'm sorry, someone here wants to ask me something. Could you please hold on a moment?"
8. If you're placing a call for another member of the dental team, make sure the person is available to talk as soon as the connection has been made.
9. Don't talk with gum in your mouth (even if the gum is sugarless). In fact, don't talk with food, cough lozenges or anything else in your mouth.
10. Always hang up last. It's a common courtesy.

One of the receptionist's most important, yet most basic tasks is to keep an accurate record of incoming calls when you're out. This phone record should include the following information:

- name of person who called (make sure spelling is correct.)
- the number at work and/or home where they can be reached
- the reason for their call
- day, date and time it came in
- if call is to be returned, some indication of when; otherwise, indicate that no return call is needed.

The DAP Advisor is a service of CDA's Dental Awareness Program, an ongoing campaign dedicated to helping all Canadians keep their teeth Good For Life.

Special facilities for dental treatment of patients with AIDS?

Editor's Note: Because the CDA "Communiqué" does not have a "Letters to the Editor" section, the Journal extends this courtesy to Dr. Mulcahy and to Dr. Gryfe for his response.

I am responding to your October "Communiqué" which dealt with the issue of treating active AIDS patients in private dental offices.

Whereas one can readily appreciate the CDA's attempt to ensure the universality of access to dental care, I was surprised by their demand that patients in a communicable stage of any disease should be treated in a private office.

The treatment of infectious and communicable diseases, and the rendering of dental treatment to patients suffering from such diseases, are clearly public health responsibilities which require special treatment facilities which are purpose-designed or readily modified for such purposes. Hospital dental departments are the obvious locations for treating AIDS patients. I do not believe that those responsible for formulating the CDA policy on this subject have realized the impact on a practice environment when AIDS patients are treated in such a "public" facility. Although we now have ready access to infection control measures which are available for effective environmental control, the preparation and clean-up time imposes an unreasonable burden on the office. In addition the psychological impact upon the staff and other patients of the practice is a matter which requires serious consideration.

There are other factors which I think are significant in relation to this topic. For example, if bleeding results from treatment, can we offer a 100% guarantee to other patients and staff that no possibility of transmission exists? Surgeons have contracted Hepatitis 'B' from patients in the O.R. and died as a result. Even though one could attribute those events to carelessness, poor history-taking or our lack of knowledge of the disease at that point in time, inadvertent inoculation is always a possibility. The environment, in treating such patients is therefore

extremely hazardous for all concerned. One has to wonder if M.D.s would perform surgery on AIDS patients in their private offices? Despite the similarity in environmental control measures required for Hepatitis 'B' and AIDS, their mortality rates are quite different. I believe that it would be unwise to permit the development of a false sense of security about the non-transmissibility of AIDS in saliva. I can recall an era when the same was believed about Hepatitis 'B'.

Containment, with regard to such a contagious terminal disease as AIDS, should be of greater concern than our presumed obligation to portray an ideal public relations image. Even if the clinical hazards do not actually differ between hospital and office environments, the public is going to perceive a positive improvement when the dental profession appears to be fulfilling its obligation to the whole community by showing appropriate concern for prevention among the well population in addition to meeting its responsibility to those afflicted with AIDS.

We should not overlook the fact that haemophiliacs with AIDS would have to be seen in a hospital environment anyway and the non-haemophiliac AIDS patients, on account of their immunodeficiency and the more unique oral manifestations of their disease warrant referral to a specialist or a facility where specialized skills are readily available, as in a hospital dental department. It appears that the quality of treatment received by these patients, and certainly their access to specialized expertise, may prove to be far superior if they are treated in a facility which can offer a coordinated multidisciplinary approach to treatment as hospitals can. Just because it *may* be possible to treat AIDS patients adequately in a private office, the CDA should not automatically assume that to be the ideal clinical solution for treating AIDS patients.

It appears that the CDA policy of persuading the provinces to regard it as a misdemeanor when a dentist exercises a preference not to expose himself, his staff and his other patients to the risk of contracting AIDS, is ill-conceived because it places very obvious public health responsibilities upon private practitioners instead of provincial and federal authori-

ties whose obligations in the matter of contagious diseases are historical fact.

The CDA has chosen to place the onus on practitioners instead of insisting that governments make funds available to treat AIDS patients in totally appropriate low-risk surroundings. It is my hope that the provincial dental associations will ignore CDA advice and adopt a policy which allows a dentist to decide whether or not his office is an appropriate environment for the treatment of patients suffering from contagious diseases. However, a dentist who opts to refuse treatment *must* be responsible for immediately referring the patient to a practice or other facility where the patient can definitely obtain treatment.

Donald F. Mulcahy, DDS,
University of Alberta,
Edmonton.

In response to Dr. Mulcahy

Letter 'misconstrues' CDA's position

Your letter of October 19, 1989, seriously misconstrues the CDA position on the responsibilities of dental practitioners with respect to patients with AIDS. The CDA policy is not at all concerned with an attempt "to portray an ideal public relations image". The fundamental concern of the policy is to ensure that the dental profession relates to AIDS patients in the same ethical and professional manner it receives all other patients. Blanket discrimination against one type of patient is a professional, ethical and legal concern.

Second, the policy does not preclude the ability of the dentist to refer a patient with AIDS to a specialized centre for treatment, assuming there are sound professional reasons for doing so. It does not permit a dentist, on the other hand, to back away from any responsibility by adopting a position that "AIDS patients are not my problem". Dentistry, to my knowledge, is still among the caring professions, and a patient who can't be referred, for example, can't be abandoned.

Finally, CDA has always supported the utilization of specially designed facilities, within dental offices and institutions, for

the treatment of patients with infectious diseases.

Professionals don't "refuse treatment" or they deny their professionalism. They accept responsibility and see that treatment is accomplished, either directly or by referral.

The CDA policy on AIDS takes this position. It was developed out of a two-day conference which was attended by experts in law, ethics, dentistry and infection control and there was no doubt about the consensus — the patient's interest is our fundamental responsibility, and no patients are automatically excluded.

Jack H. Gryfe, DDS

Chairman, CDA

Community & Institutional Dentistry Committee.

In response to the editorial 'Can you see the difference?'

Although I agree with Dr. Crawford and many Canadian dentists that there is no room for blatant advertising in the delivery of a health care service, I do not agree that a newsletter inevitably falls in this category.

A newsletter that is constructed with the idea of mailing beyond your own patient base to include other potential patients in the community falls in the category of external advertising. Exposure of the benefits of dentistry to the broad masses by a private practitioner's newsletter is self seeking and this kind of advertising belongs in the realm of institutional advertising as currently is being promulgated by the CDA. However, a newsletter written to be distributed only among a dentist's current patient base should be applauded as a positive step in dentistry and not be subject to ridicule.

Our communication skills are essential to running a successful dental practice and everything we do communicates to our patients our attitude towards them — everything from how we dress, the cleanliness of our office our punctuality, the friendliness of a telephone voice, etc. etc. An opportunity exists to further enhance and solidify our care to each of our patients through written communication (recall cards, new patient letters, newsletters etc.). When a new patient comes to the office and is sent a letter after the visit reiterating your commitment to looking after their dental needs it communicates your care and certainly can't be

construed as advertising in any negative sense.

A self-written newsletter sent out to a patient for the purpose of informing or educating them as to the benefits of the services and perhaps entertaining to create a more relaxed, more dentally aware patient who will find dental treatment easier to swallow is also not in the realm of advertising. There is a cost to expanded written communication to our patients but increased service has its rewards in knowing you are doing all you can to improve the image of dentists and dentistry.

Computers with their data bases and word processing capabilities allow dentists to serve their own patients more thoroughly than was possible before its presence in the dental office. The biggest failure in dentistry is not poor margins but poor and inadequate communication with the people we treat. Any form of communication with my patients that enhances their trust and understanding and participation in their own dentistry is a positive step for dentistry. We no longer can survive in dentistry if we just take care of teeth — we must expand our attention to detail to include the "red carpet" treatment of our patients.

Dr. Tom Gordon,

Kelowna, B.C.

Still 'flaws in the system'

Just a word of thanks for your kind comments regarding the new CDA Uniform System of Codes and List of Services.

It was interesting to see recognition of our efforts 25 years later and it was the foresight of the Executive and Board of the CDA that created the Committee and gave us the directive.

I am sure that you are aware that there are many flaws in the present system. I think the time factors in many instances are out of step with reality when it comes to some of the more sophisticated procedures and I think that some of the responsibility factors are also out of step. However, nothing is perfect and I think that if one checks back one could find somewhere in the transactions or minutes the reference to our comment, one year later, after the relative value system was accepted, that these same factors needed a constant accurate work-up and while an attempt has been made to do this, I find that particularly in the Ontario Fee Guide, which is the one I most often see, that this is even more apparent.

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Facing Separation and Divorce: What is your Licence to Practice Worth?

by Gene C. Colman*

Editor's Note: The Journal is pleased to introduce Mr. Gene C. Colman, a specialist in Family Law and a member of a prominent Toronto law firm. Further articles will follow in a series on subjects of vital interest to professional practitioners.

After completing her dentistry studies and firmly establishing herself in private practice, Dr. Janice Jones (the names in this article are fictional) was fortunate to meet and marry a very special individual. John was a writer; he certainly did not earn very much money. But he was a very good father to their two children. John's chosen profession enabled him to remain at home to care for the children while Janice pursued her career. Janice had obtained her licence to practice dentistry before she even met John. Janice and John have now separated. Should John be able to share in the value of that licence? (If "yes", then Ontario's Family Law Act would credit John with the increase in the value of the licence from the marriage date to the separation date.)

Dr. Smith is an exceptional individual. At age 17 he worked in a dental lab. He married at age 20 and with his devoted wife's financial support (she held down two jobs) he went back to school and obtained his degree in dentistry. After five years in a very successful practice, Dr. Smith decided that he wanted a divorce. Mrs. Smith's accountant valued Dr. Smith's licence at \$300,000 and his practice at \$400,000. Dr. Smith is now wondering whether it is financially feasible to go through with the divorce.

Obviously, there are differences between the situations of the two dentists. Most people would probably expect that Dr. Jones should not have to pay anything to her husband on account of her degree. After all, he played no role in Dr. Jones acquiring them. On the other hand, most people would surmise that Mrs. Smith should be compensated somehow for the very direct contribution that



* **Gene C. Colman, BA, LLB**, practises family law with Teplitsky, Colson (Toronto and Brampton). He has practised family law since 1979. Mr. Colman is a founding editor of the *Canadian Journal of Family Law* and is currently a member of that journal's editorial board. His recent publications include:

Joint Custody: Recent Developments, (1989), *Canadian Family Law Quarterly*, Vol. 4, issue 1.

Joint Custody: An Update, (1989), *Reports of Family Law*, Vol. 19, page 246.

Mr. Colman was also author of the article entitled: "Dispute Resolution — Let's Get On With It", prepared for publication in the November, 1989, edition of *Canadian Lawyer* magazine.

He is a member of the family law section of the Canadian Bar Association and the American Bar Association.

she made to Dr. Smith's acquisition of his licence and his practice.

The law of Ontario (and indeed in the other provinces as well as in the United States) is presently grappling with these very difficult issues. At the moment, the law is far from settled.

Ontario's Family Law Act purports to equalize wealth acquired during the

marriage between the spouses. The Act applies not only when a couple separate but also under certain circumstances upon the death of one spouse. What was intended to bring predictability and certainty has wrought uncertainty and legal havoc. The Act is particularly important for dentists whose licence to practice might be considered as "property" within the meaning of the Act.

The property of each spouse is valued under the Family Law Act. The increase in a spouse's net worth from the marriage date to the "valuation date" (generally the date of separation) is shared equally. Of course there are exceptions, but this is the general scheme.

The Act can also apply on death. If the surviving spouse believes that the will yields less than (s)he would have obtained had the couple separated, then that spouse is permitted to make a claim against the estate.

Therefore, even if a dentist feels that his/her affairs are in order — that a spouse has been well looked after — and even if there is not a hint of marital discord, the best laid plans can go awry.

It therefore behooves the well informed dentist to be just that — well informed! What directions are now being pursued by the courts?

Before calculating the appropriate "equalization payment", we decide what is actually "property" and what is each property's "value". One can easily fix a fair value to items of property such as real estate, cars, furniture, bank accounts. Problems arise when the spouse of a dentist insists that the licence to practice dentistry is itself "property" and that this licence has a considerable value. If the Supreme Court of Canada ultimately decides that a professional licence is property and that it does have value, then dentists (or their estates) could face very large claims.

Conceptually, the analysis as to whether a licence is property or not should not be dependent upon the spouse's contribution to the acquisition of the licence. Either a licence is property or it isn't. Whether it was acquired through joint efforts or not should make

no difference as to its inherent value. Unfortunately, the cases decided thus far have not generally appreciated this. If a spouse made a contribution to the acquisition of the licence — i.e. the spouse contributed to the realization of the dentist's career potential — then that contribution should be financially recognized whether a licence is property or not. This new concept of "compensatory support" has received some tentative recognition in the Ontario courts during the last two years (but this topic will be a subject of a further article). From our example, Dr. Smith's wife would surely qualify for compensatory support, if this concept becomes more widely accepted by the courts. Dr. Jones' husband might also qualify for compensatory support.

A capsulized overview of some of the decided cases may provide an indication of the present uncertainty in the law:

1. Corless — In 1987 Judge Steinberg of the Unified Family Court considered a licence to practice law. He held that such a licence was property but had no value.

2. Menage v. Hedges — Later that year, Judge Fleury of the same court considered the value of the medical practices of a Hamilton couple who were both physicians. While both parties conceded that the licences themselves were not property within the meaning of the Family Law Act, they disagreed as to the appropriate method to value their practices. (This case has been referred to in other decisions where the court was considering the "licence" issue, even though the case is, strictly speaking, a practice valuation one.) Dr. Hedges did not work out of an office, had no patients of his own and worked primarily as a cardiovascular surgical assistant for four Hamilton surgeons. Dr. Menage had been in private practice for less than three months when the separation occurred and consequently had not yet established any significant patient base. Dr. Menage argued that the practices should be valued based upon their ability to earn a certain income stream. This "capitalization of earnings" approach is one frequently used by business valuers. It was a method found by Judge Fleury to be particularly inappropriate to the valuing of medical practices. Therefore, the conclusion reached was that both practices had no value outside of their hard assets and receivables.

A danger of blindly accepting this decision is that Judge Fleury, in reaching his

decision, relied upon Justice Craig's decision in *Brinkos*, a case that was overturned on appeal. Justice Craig held that you cannot take a future stream of income and call it "property". The Ontario Court of Appeal recently said that you could.

3. Caratun — A foreign graduate dentist obtained his licence to practice dentistry in Ontario partly through the efforts of his wife. No sooner had the licence been obtained the husband told the wife that he wanted a divorce.

Justice Van Camp held that the licence itself was property within the meaning of the Act. However, the American precedents upon which she relied talked of professional licences acquired with the assistance of the other spouse. Her decision itself specifically refers to those licences that are "the product of a joint effort". Thus, the decision may be of limited applicability to those situations where the spouse makes no contribution to the acquisition of the licence.

Finding that the value of the licence was \$219,346 based on the present value of a future income stream discounted for life's vagaries, Van Camp awarded the wife a straight \$30,000 interest in the licence as representative of "her contribution". Van Camp did not add the value of the licence to Dr. Caratun's property for equalization purposes (an approach that has attracted some criticism). . . . The case is currently under appeal.

4. Linton — The husband returned to school during the marriage and obtained a doctorate in animal physiology. The wife claimed that the doctoral degree was property. Judge Killeen disagreed. He rejected Van Camp's approach in *Caratun*. Professional degrees and licences could not be property. Judge Killeen asked rhetorically:

"If the courts hold that the lawyer's right to practice, or the doctor's or dentist's licence, is property, where are the limits for such a holding within the framework of the employment patterns of our community? These professional qualifications do nothing more nor less than enable their possessors to work in a particular occupation and earn an income. How, then, can the law draw any rational and logical dividing lines between occupations when deciding which kind of job qualification will attract property assessment under Pt. 1 of the F.L.A.?"

He sensibly concluded:

"It is clear that the right to work, whether in a profession or otherwise, is a right entirely personal to the individual and is not capable of transfer to another nor can it be considered as a subject of "ownership" in the ordinary meaning of that term."

5. Brinkos — At trial, Justice Craig decided that the right to a future income stream from a trust fund was not "property" within the meaning of the Family Law Act. The Court of Appeal recently decided that it was. The appellate court took pains to differentiate between the future right to receive income because of an "external event" versus the situation where a professional practising under a licence earns income through his/her own efforts. The court stated: "The licence will earn nothing without the services of the licensee. . .". On the other hand, a trust fund will throw off income regardless of the efforts made by the beneficiary of the trust. While this case provides a very strong indication that professional licences are not property, one must consider that the issue of the nature of such a licence was not directly before the court. Therefore, the court's musings on the issue are not, strictly speaking, binding.

What is the bottom line? We will have to wait for the Ontario Court of Appeal decision in *Caratun*. But even after that decision, there is a possibility of a further appeal to the Supreme Court of Canada in *Caratun* or in other similar cases. If a future income stream can be called property, conceptually speaking, a right to a future income stream by virtue of one's employment might also be caught. Nonetheless, it would be unwise to assume that licences to practice dentistry are property. Until the Supreme Court of Canada finally resolves these issues, a dentist should not necessarily concede that his/her licence to practice is "property". Δ

Mr. Colman has been happily married to Dr. Lisa Goldstein, BSW, MD, CCFP for 18 years. They have five children (ages seven months to nine years).

Regarding his articles, he cautions the reader that each situation is different. This article is presented for general interest only and should not be relied upon in order to draw conclusions about any individual's legal problems. If you have a legal problem, or if you wish to take steps to avoid the application of the Family Law Act to you, then, Mr. Colman advises, a lawyer should be consulted.

Vasodepressor Syncope

D.S. Precious* and J.E. Armstrong**

ABSTRACT

Vasodepressor syncope is the fulminant expression of the behavioral disorder "Blood-Injury Phobia". Vasodepressor syncope or the "common faint" is characterized by a diphasic autonomic hyperactivity that begins with anxiety and leads to a transient loss of consciousness. Recognition of the behavioral etiology of this disorder suggests the possibility of prevention through psychotherapy. Understanding the pathophysiology of the diphasic autonomic hyperactivity allows for rational management of the "common faint".

SOMMAIRE

La syncope vasomotrice est le résultat violent d'un désordre du comportement appelé "phobie des blessures et du sang". La syncope vasomotrice ou le "simple évanouissement" se caractérise par une hyperactivité autonome diphasique qui débute par une anxiété et mène à une perte de conscience passagère. La reconnaissance de l'étiologie comportementale de ce désordre suggère qu'on pourrait la prévenir par psychothérapie. Comprendre la pathophysiologie de l'hyperactivité autonome diphasique permet de gérer rationnellement le "simple évanouissement".

Vasodepressor syncope should be differentiated from vasovagal syncope because what is frequently termed "the common faint" is in fact vasodepressor syncope. Vasovagal syncope occurs as a consequence of stimulation of parasympathetic pathways that result in bradyarrhythmias including asystole.¹

Vasovagal syncope is associated with mechanical manipulation of orbital, mid-facial, pharyngeal, mediastinal and abdominal viscera.^{1,2,3,4,5,6} The phenomenon can be explained on the basis of induced vagal stimulation of the myocardium.⁷ In vasodepressor syncope however, both pathophysiologic reflex and behavioral factors are involved. It is the behavioral element, the blood-injury phobia which is clinically distinct and to which much attention has been paid in the literature of behavioral science.⁸

The blood-injury phobia is characterized by discomfort, "faintness", cardiovascular changes, nausea and loss of consciousness, triggered by cues involving blood, fear, and perceived or actual physical injury.⁸ It is estimated that one half of the population of the United States actively avoids regular dental treatment and that the majority of these do so out of fear of personal injury.⁹ One can therefore consider "dental phobia" as an element of blood-injury phobia. In individuals so afflicted, prevention of vasodepressor syncope can be accomplished often by treatment of the blood-injury phobia.⁸

Pathophysiology of Vasodepressor Syncope

The precise mechanism by which psychological events initiate vasodepressor syncope remains unknown. Animal studies have shown that emotional stress, fear and uncertainty can cause reduction in heart rate, cardiac output (parasympathetic effects) with increased blood flow and vasodilatation in the skeletal muscle (sympathetic effect).^{10,11,12} In

humans vasodepressor syncope typically develops under circumstances perceived as those involving injury or threat of injury where personal psychological variables involve uncertainty, not only as to outcome but also to whether flight or submission is more appropriate. Conflict is intensified by social pressure that invokes shame and humiliation at signs of weakness. Certain authors believe that the crucial psychological variable is the unresolved uncertainty.¹³ As the conflict reaches its zenith, parasympathetic dominance is established and the aroused hyperdynamic cardiovascular state is replaced by a hypodynamic state. The stage is now set for fainting.¹ Dental treatment provides fear and uncertainty, two necessary prerequisites to trigger the phobic patient.

The cardiovascular change of vasodepressor syncope is diphasic¹⁴ in that there is an initial period of several minutes during which heart rate, blood pressure, total peripheral resistance and cardiac output all increase¹⁵ followed abruptly by a reduction in heart rate, systemic and pulmonary arterial pressure, total systemic and pulmonary vascular resistance and cardiac output. Once this has occurred if the patient remains seated upright in the chair the venous return pump of muscle contraction is abolished. Loss of venous tone, failure of the muscular venous pump and dilatation of muscular vessels cause an increase in total vascular capacity which in fact is a relative hypovolemia and thus venous return to the right heart is reduced. As a result cardiac output falls and is unable to support cerebral circulation which in turn results in cerebral ischemia. Clinically this is manifest as a loss of consciousness.

Apprehensive patients may also hyperventilate. The "blowing off" of carbon dioxide results in hypocarbia which

* Head, Department Oral and Maxillofacial Surgery, Dalhousie University and Victoria General Hospital, Halifax, Nova Scotia.

** Senior Resident, Oral and Maxillofacial Surgery.

PATHOPHYSIOLOGY

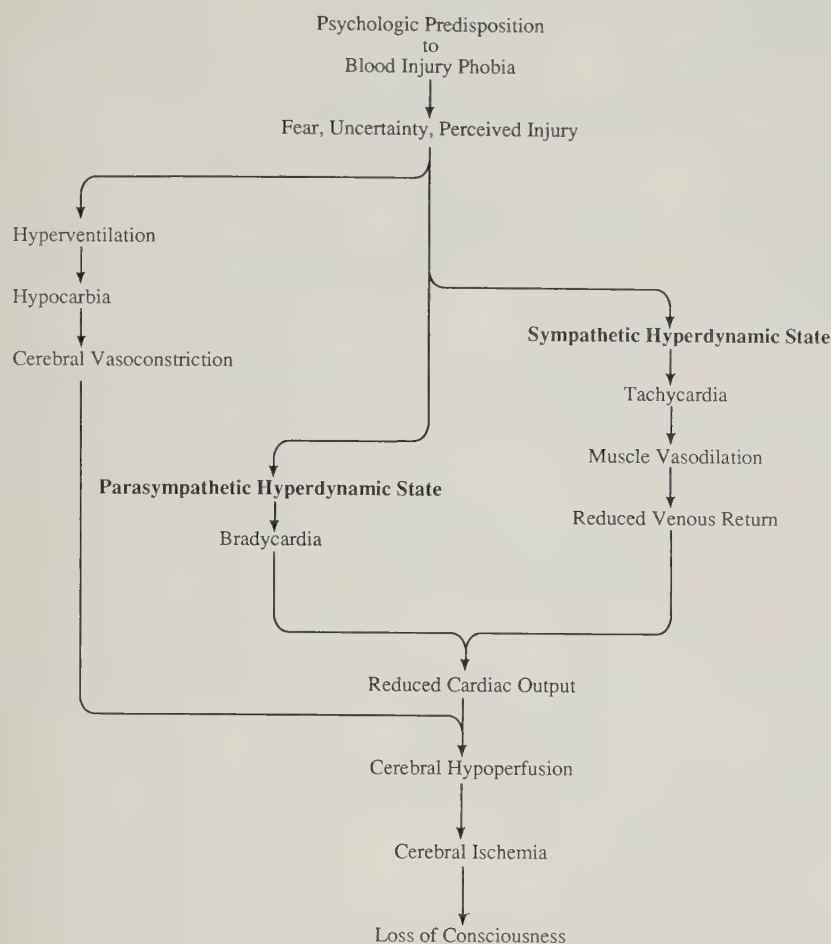


Table 1: Abridged algorithm of the pathophysiology of vasodepressor syncope.



Figure 1: Proper positioning of patient in management of vasodepressor syncope.

causes vasoconstriction in the cerebral vessels confounding the existing cerebral ischemia. Central nervous system seizure activity, often associated with vasodepressor syncope is due to cerebral ischemia and not due to the reduced serum calcium ion concentration secondary to prolonged hyperventilation. Loss of consciousness may cause airway obstruction in the unsupervised patient. (Table 1).

Clinical Manifestations

Prodroma

Prodromal signs and symptoms include a feeling of warmth around the head and neck, sweating, light headedness, nausea, vomiting, visual changes and auditory changes. Clinical signs include ashen grey color, agitation, restlessness, tachycardia and tachypnea. This is followed by pupillary dilatation, yawning, cold and sweaty extremities, bradycardia, progressive hypotension, dizziness and loss of consciousness.

The duration of the prodromal period of vasodepressor syncope prior to loss of consciousness is especially important. It lasts for several minutes. Absence of this typical warning period makes the diagnosis of vasodepressor syncope unlikely.^{28,29} Shorter or absent presyncopal warning is characteristic of a more ominous cardiogenic etiology such as acute myocardial infarction.

Syncope

This period begins with loss of consciousness. Muscular relaxation can alter the pattern of respiration. The tongue with loss of muscle tone can partially or totally obstruct the upper airway. This results either in irregular, jerking respiration with evidence of recruitment of the secondary muscles of inspiration, or in severe cases, frank apnea.

Cardiovascular signs range from bradycardia (HR < 50/min) to cardiac standstill and the patient is hypotensive with systolic pressures as low as 20-30 torr.¹⁸ The neurologic manifestation of cerebral ischemia can include pupillary dilation and convulsive motor discharge evident as facial muscle twitching and generalized seizure activity.

Management

Prevention

Prevention is based on the understanding of precipitating factors relevant to clinical dentistry, recognition of individuals with

a blood-injury phobia and understanding the pathophysiology of vasodepressor syncope.

Prevention begins with the initial interview and the history taking the importance of which is that approximately 50 per cent of those who faint during a dental procedure have done so in the past.¹⁹ From a history of previous syncope episodes the presence of prodromal signs and symptoms can be evaluated. It cannot be overemphasized that the absence of the typical prodromal period make the diagnosis of vasodepressor syncope unlikely.^{16,17}

It is prudent to position the patient in a supine position during procedures that are alarming to the patient,²⁰ to maximize venous return to the heart and help maintain cardiac output.

Although stress reduction during the delivery of dental treatment both with pharmacological and non-pharmacological means is well recognized, little attention in the dental literature has been paid to the treatment of the behavioral disorder itself, the blood-injury phobia. It seems to us that this would be the most appropriate first step of prevention.

Prodroma

Recognition of prodromal signs and symptoms is fundamental both to arresting the process and initiating resuscitation. Positioning the patient in a supine position with the legs elevated above the right atrium maximizes venous return, (Fig. 1). Placing a cold, damp cloth on the patient's forehead is thought to be a beneficial distracting manoeuvre. The administration of oxygen is useful only if there is effective respiration and circulation and no underlying medical contraindications such as chronic obstructive pulmonary disease with CO₂ retention. Irrespective of the use of supplementary oxygen the clinician's first responsibility is to accurately assess airway, breathing and circulation.

Syncope

The dentist can prepare to efficiently manage vasodepressor syncope by securing training in basic CPR. This training will enable him to accurately assess airway, breathing and circulation. The application of these skills in the management of syncope should supersede the use of resuscitative drugs, the safe use of which requires advanced medical training. Following recovery from a vasodepressor syncopal reaction, the patient

MANAGEMENT	
PREVENTION	
Recognition of Blood Injury Phobia	
Referral for psychotherapy	
Positioning of Patient	
Supine during stressful procedures	
TREATMENT	
Terminate procedure as soon as possible	
Place patient in supine position	
Cardiopulmonary function	
Certify patent airway	
Certify breathing	
Monitor pulse, blood pressure and respiratory rate	
Adjunctive measures	
Cold cloth to forehead	
Supplement O ₂	
Support core temperature	
Reassure patient	
Re-evaluate preventive measures	
Re-appoint at least 24 hours later	

Table 2: Management of vasodepressor syncope includes prevention and treatment.

should not be subjected to reappointment for 24 hours. Certain authors believe that the risk of a second episode is increased and that up to 24 hours are required to fully recover.³¹ (Table 2).

Conclusion

Dental patients who exhibit increased blood pressure and heart rate, excessive sweating, pallor and dilated pupils are not merely demonstrating anxiety. These individuals are exhibiting the signs and symptoms of blood-injury phobia and the prodromata of vasodepressor syncope. Vasodepressor syncope, or the common faint, is usually a benign event, however the hemodynamic changes that occur can

inflict profound morbidity and even mortality in the medically compromised patient. Therefore prevention, recognition and expedient resolution of vasodepressor syncope are of vital importance.

Blood-Injury phobia is a recognized behavioral disorder which aptly describes those patients who are both terrified of dental treatment and prone to fainting. Current dental education stresses the treatment of such individuals in the dental office and hospital with stress reduction protocols, conscious sedation technique and general anesthesia. The dentist should recognize that prior to administration of these treatment methods appropriate psychotherapy for phobic patients can in fact be preventive dentistry. The

ultimate goal is to improve the delivery of safe dental treatment to that segment of society which avoids dental treatment because of fear. Δ

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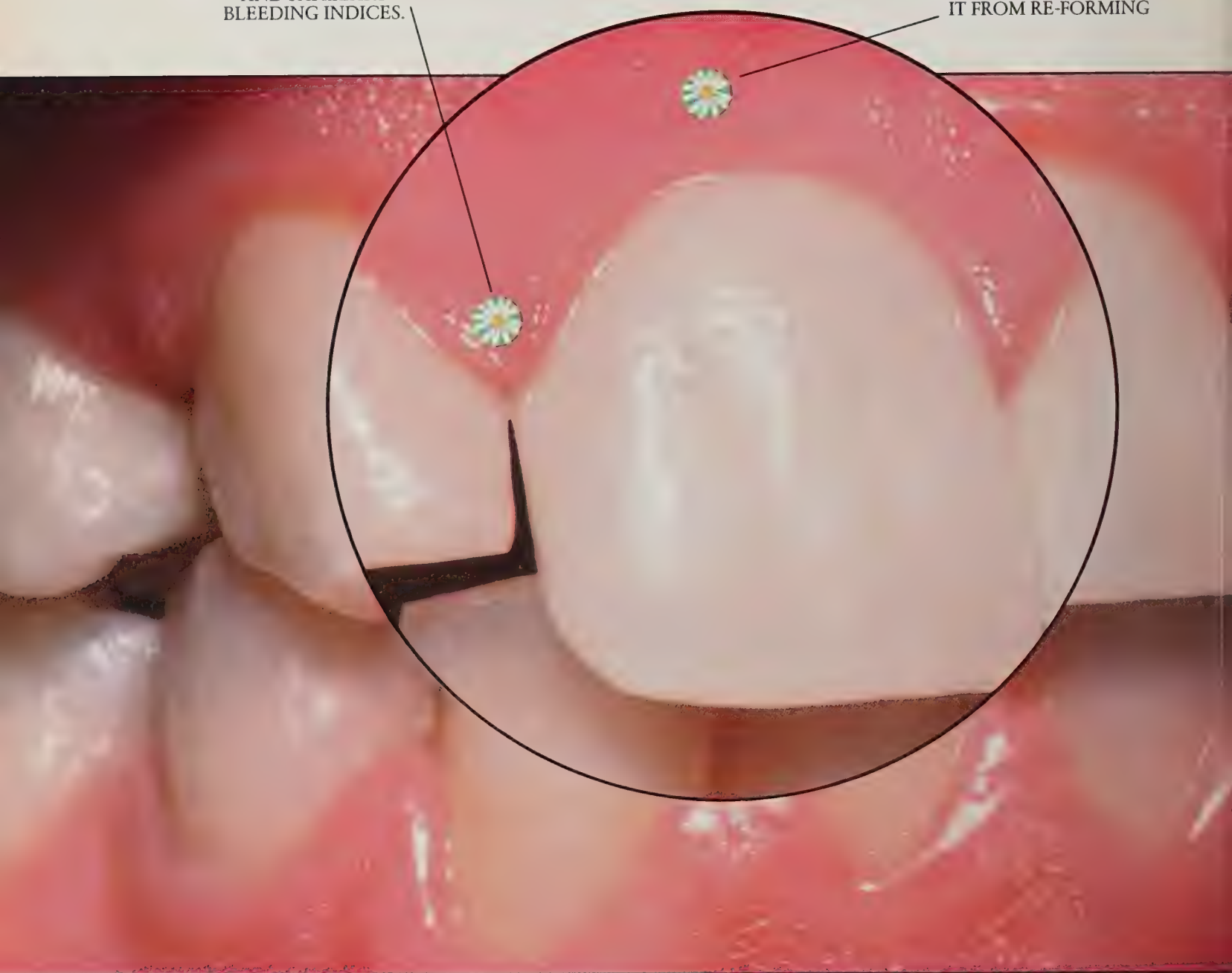
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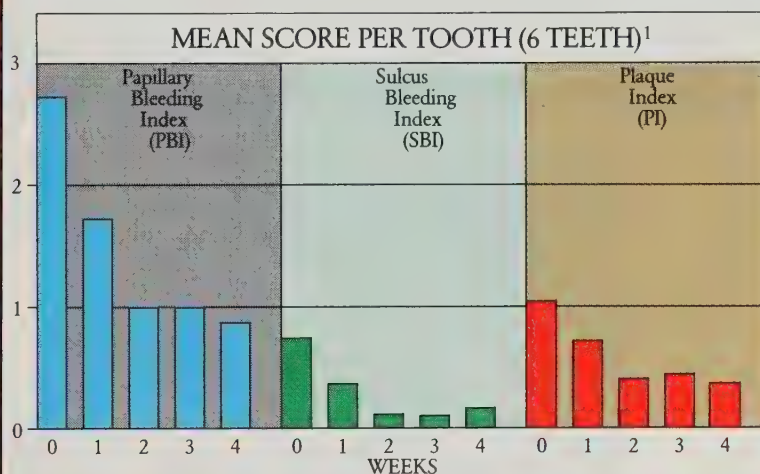
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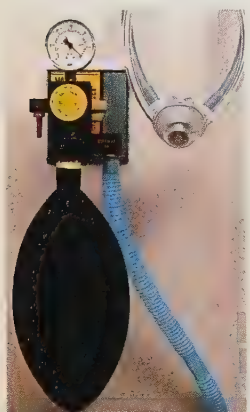
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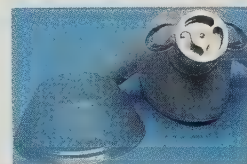
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The Management of Dento-Alveolar Trauma — A Review —

Richard G. Stapleford, DDS, FRCD(C)

ABSTRACT

The clinician faced with the management of an insult to the masticatory system involving the dentition, its alveolar housing and the investing tissues often faces a formidable task. The restitution of traumatic derangement of oral-facial structures mandates a systematic approach to hard and soft tissue management with particular reference to the unique biological characteristics of this environment. A decidedly improved prognosis may be offered to the patient when basic principles are followed and the indicators for successful long term stabilization are realized. Awareness of these practical principles renders the dentist in general practice able to provide primary or referral care.

SOMMAIRE

Le clinicien qui doit traiter un trauma aux mâchoires, aux dents, à leurs alvéoles et aux tissus qui les recouvrent se retrouve devant une tâche considérable. Le traitement des traumatismes infligés aux structures de la bouche et du visage exige une approche systématique pour la gestion des tissus durs et mous avec une attention particulière aux caractéristiques qui sont tout à fait propres à cet environnement. On peut offrir au patient un pronostic résolument amélioré lorsqu'on suit les principes fondamentaux et qu'on obtient les indices d'une bonne stabilisation à long terme. Avec ces règles pratiques, le praticien général peut donner les premiers soins ou adresser le patient à qui de droit.

Introduction

If the teeth at the point of injury are displaced or loosened, when the bone is adjusted fasten them to one another, not merely the two which are loose, but several, preferably with gold wire, but, lacking that, with linen thread, until consolidation takes place".¹

Hippocrates (460-375 B.C.), recording in the Corpus Hippocraticum, vividly recounts early attempts at the management of dento-alveolar trauma. Throughout the ensuing centuries writings reflect a myriad of management techniques. Contemporarily, the exhaustive contributions of authors such as Andreasen, Rowe, Killey, and Dingman clearly delineate the basic principles of treatment by concentrating scientifically on experiences acknowledging applied surgical anatomy, modern biomaterials and meticulous surgical care.

The tooth, and its investing tissues, is an irreversibly integral component of masticatory function and its preservation after injury is a goal to be constantly sought. Often overlooked however, are the profound psychological aspects of physical attractiveness. Functionally, dental units are replaceable with reasonable predictability but the effects of traumatic alteration of oral-facial form on the socialization process, and the injured person's psychological adaptability are certainly less well understood and manageable. In North America, society displays a collective reluctance to acknowledge the impact of facial physical attractiveness or its distortion. Since "rigid social standards concerning facial appearance place excessive pressures on people whose appearance deviates from normal",² and physiological functional requirements of occlusal and soft tissue harmony are a mandate, it behooves each clinician accepting dento-alveolar trauma patients to understand the anatomical physiological and technical aspects of treatment.

Applied Anatomy and Physiology

Teeth, alveolar bone, periodontium, gingiva and labial skin, mucosa, muscle and adnexia recover from trauma frequently with surprising versatility. The rich vascular associations in this region account in part for this phenomenon. The teeth receive blood supply not only from the terminal alveolar arteries via the apical foramen, but also by a complex network of vasculature within the surrounding bone and periodontal membrane. Anastomoses are present between labial, periodontal, gingival and lingual vessels with the periosteal and endogenous maxillary and mandibular alveolar arteries. In the maxilla penetrating blood vessels to those intramedullary vessels come from the maxillary sinus, nasal mucosa, turbinates and septum. Numerous microangiographic studies in relation to osteotomy surgery have documented this clinically apparent situation.³ Thus the subluxated or avulsed dentition has much more revascularization potential than that dependent solely on the apical vessels.

The lips and buccal mucosa, tongue and floor of mouth are similarly richly supplied by the terminal decussation of the external carotid arterial system via the facial, lingual and inferior alveolar arteries. The oral investing soft tissues therefore possess a unique resistance to all but the most severe vascular compromise.⁴

In the oral milieu, structural support is not confined to the osseous parts. The periodontal fibres both crestal and radicular offer significant resistance to displacement. The periosteal envelope is relatively non-distensible. Muscle, fascia, skin and mucosa, the integuments, have long been considered important buffers to facial bone distraction in trauma. The exemplary experimental work of Rene LeFort in 1901 graphically demonstrates this principle.⁵

Geometric considerations allow susceptibility in the dento-alveolar region

in relation to the direction of force, its degree and the resistance offered. Typically an Angle's Class II malocclusion, a maxillary alveolar protrusion or bilabial protrusion are anatomic relations with liability to anterior dento-alveolar injury either directly or indirectly as the teeth contact suddenly as in a blow to the relaxed mandible. Conversely clenched jaws braced for an impact may disperse the force beyond the dental or alveolar level resulting in major facial bone fracture. Clearly oral soft tissues offer variable surfaces i.e., gingiva and palate frequently carry periosteum with them when altered whereas alveolar mucosa and lip may separate from the deeper tissues leaving bony coverage but allowing herniation of fat, muscle and minor salivary glands which if ignored may yield undesirable consequences after healing.

A classification of dental, pulpal, periodontal, alveolar bone and gingiva or oral mucosa injury of a comprehensive nature and universal application has been presented by Andreasen⁶ based on exhaustive clinical studies. It is based on the World Health Organization (W.H.O.) system and I.C.D. (International Classification of Diseases) number.⁷ Such systems establish a foundation from which treatment alternatives may be formulated.

Management

General

Rarely will a patient with isolated oral-facial trauma be unable to document an accurate general medical and dental history. The particulars of the present injury should necessarily assess the nature and degree of external or internal force; similar previous injury; loss of consciousness; current tetanus immunization and the time since injury. An accurate medical history should be recorded. A thorough body systems review will screen for additional possibly occult injury (i.e. neck pain in the cervical hyperextension injury).

The oral examination should adhere to the principles of inspection, palpation, percussion and auscultation (where indicated) and should proceed in an orderly fashion. Clinical testing especially for pulpal integrity can be very unreliable shortly after injury whether it be thermal, electrical or mechanical and cannot be used as the sole justification for irreversible therapy (i.e. extraction). Often repeated long term reassessment and testing over several weeks to months is advisable.

Radiographic evaluation is best done intra-orally using periapical and/or

occlusal films (multiple views if necessary).

Panoramic exposures give limited detailed dental and alveolar definition but are very diagnostic when fractures extend beyond the tooth bearing structures.

Exposure of the soft tissues adjacent to trauma (i.e. lip) may be considered when lost or fractured dentition cannot be accounted for and may even mandate chest views if aspiration is suspected.

The intent of treatment in general is to restore functional anatomy and abort or control early or delayed pathological processes such as internal or external root resorption, ankylosis, hypercementosis and extensive radicular cyst formation.

The management of the following types of injury will be reviewed: crown and/or root fracture, subluxation or avulsion, alveolar process fracture and associated soft tissue injuries to the oral mucosa and lips.

Crown and Root Fractures

The level of coronal disruption determines the complexity. Crown fractures with or without pulpal exposure lend themselves well to restorative "patching" techniques with bonded acrylic resins and pulpal protection using calcium hydroxide. Periodic radiographic and vitality assessment at two or four months should precede permanent restorations. In general non-responsive vitality testing in the presence of normal coloration and the absence of inflammation symptoms does not necessarily reflect pulpal necrosis requiring endodontics and such teeth may be followed as normal. Likewise the primary dentition is treated conservatively.

When coronal fractures extend subgingival and below crestal alveolar bone 2-3mm. the residual root fragment may be exposed surgically, engaged orthodontically, extruded, retained and ultimately restored. Primary crown root fractures generally warrant extraction.

Although root fractures, notably those in the apical third, have been shown to repair with dentin and cementum, a more common sequellae seems to be interfragment separation by granulation tissue, or connective tissue including bone.⁸ An apical fragment may retain vitality and accurate and lengthy rigid splinting of anatomically reduced fragments offers the optimum repair conditions.

Subluxation or Avulsion

The susceptibility of a subluxated (loosened) or avulsed (disarticulated) tooth to

the destruction of periodontally mediated root resorption is a well documented phenomenon.⁹ Additionally even the mildest of concussion to the apical foramen may cause strangulation of the apical neurovascular bundle sufficient to generate pulpal necrosis and internal resorption. Andreasen delineates three distinct types of root resorption; namely surface resorption, replacement resorption (ankylosis and loss of radiographic periodontal membrane space) and inflammatory resorption (root dissolution with periradicular radiolucency). Predictability and prognosis are generally uncertain, however some factors may affect outcomes. Teeth intruded or laterally subluxated seem more susceptible to external root resorption or peri-radicular bone loss while excessive mobility and open apical foramina are at risk for endodontic failure.

Yacobi defines uncontrolled trauma, a variable which may influence outcome as: time out of socket, storage medium, root development and associated bone fracture.¹⁰

Time out of socket in subluxated situations allows for space occupying hematomas to collect which may affect peripheral blood supply and mechanically resist accurate repositioning. With avulsive injury a direct relationship is said to exist between the extra alveolar period and the degree of resorption. Two hours is generally accepted as a reasonable time after which a higher resorption incidence is noted.

Storage media have been evaluated including saline, saliva blood and milk with the latter offering advantages in terms of periodontal membrane cellular survival.

With the higher incidence of inflammatory resorption in immature teeth, pulpal canal obliteration affords some preventive advantages.

Adjacent alveolar bone fracture, in particular comminution, (fragmentation) can push the loss of vascularity beyond recoverable limits and predispose to concurrent pulpal necrosis and resorption.

Subluxated dentition whether primary or permanent does well when splinted semi-rigidly with resin-bond systems or orthodontic brackets and light arch wires. As in avulsive injuries some degree of mobility is acceptable and perhaps advantageous as a stimulus to periodontal ligament "re-attachment". The rigidity of traditional arch bars and inter-dental wiring is considered by Andreasen to be contraindicated due to possible irreversible periodontal compromise at the crestal region although arch bar gener-

ated gingivitis is considered a reversible phenomenon clinically. A fine supra gingulum figure of eight periodontal type splints with ancillary acrylic embrasure support has been a successful alternative.

The delayed treatment (i.e. 2 hours or more) of subluxated or intruded teeth should be completed orthodontically within a month of injury.

When the attached gingiva has been lacerated and displaced simple sutures re-adapting the interdental papillae and crestal tissue at or above the enamel cementum junction often supplies ample support for dentition provided a strict soft diet and no biting are enforced.

The question of the timing of endodontic therapy appears well answered in the literature and has been confirmed in clinical experience. Subluxated teeth should be monitored radiographically and by vitality testing periodontically over one year. Avulsed permanent teeth should have endodontic therapy initiated one to two weeks post replantation and apically immature teeth observed radiographically for early signs of inflammatory resorption at which time pulp chamber obliteration should commence.

Excessive manipulation of the root surface other than simple washing in saline and gross debridement may disturb viable periodontal ligament structures and is not advisable.

Non salvagable teeth are usually those in which the dentition is exceedingly crowded or the alveolar housing avulsed or comminuted beyond its ability to provide reasonable support particularly on the facial surface. Delayed replantation beyond 12 hours and root damaged situations are certain failures.

Alveolar Process Fracture

Realistically simple subluxation or avulsion must be accompanied by some form of alveolar bone distortion or fracture to allow for dental displacement. Such situations are aptly managed with intra-coronal stabilization methods discussed previously.

When the injuring force is distributed over a broad area (i.e. a quadrant) or is blunt in nature (i.e. a fist) the force vector distribution will follow the lines of least resistance within the facial skeleton. If one considers the alveolus independent of the basal maxillary and mandibular bone then the subapical region becomes a cleavage plane. Most external forces cause inward deflection of alveolar bone segments and resultant lingual malposition of teeth and associated bone. An exception is the outward rotation of an

anterior maxillary alveolar fracture created when the mandible is forced superiorly in the presence of a Class II malocclusion.

Teeth are frequently intimately involved in the vertical component of an alveolar fracture and in general should be maintained even when the entire vertical extent of the periodontal ligament space is involved.

Manual reduction, guided by occlusal and inter arch relations, is maintained in an immobilized state for three to six weeks using a variety of methods. Orthodontic brackets or resin bonded splints are ideal and arch bars may be used if necessary. Acrylic or vacuum formed full occlusal coverage splints made on reconstructed study models are equally acceptable, however time consuming to fabricate. In large, multiple or occlusally complicated alveolar fracture cases, intermaxillary fixation may be advisable, particularly in association with extensive soft tissue injury.

In the primary dentition with clinical crowns which do not accept inter-dental wiring well, alveolar fractures are easily maintained in position with full coverage splints and circum-mandibular or maxillary suspension wires.

Peri Oral Soft Tissue Injury

The time honoured axiom in major facial trauma directs surgical repairs sequentially from deep to superficial and interior to superior. Therefore dento-alveolar hard tissue repair should precede soft tissue restitution.

For proper anatomic and functional repair of soft tissue, attention need be directed to all layers that are violated. A failure to appreciate that muscular tissues when lacerated will retract away from the injury site and if not re-approximated will contribute to esthetic and functional compromise. This should be avoided. Herniated minor salivary gland tissue may be excised or replaced beneath submucosa. Minor sensory nerve fibres are not repaired since reinnervation by peripheral "in growth" occurs in the majority. Care needs to be exercised to accurately re-anastomose the vermilion margins of a lacerated lip. Tissues will exhibit less scarring when passively re-approximated with fine suture (000 or 0000 gut) and atraumatic technique such as horizontal mattress sutures.

Broad spectrum antibiotics are utilized as well as occlusive dressings changed every two days. Ster-strips will reduce transverse disrupting tensions on most lip wounds. Wound care and debridement

using one quarter strength hydrogen peroxide and saline is continued daily for one week.

The initial phases of wound repair of any kind at the biological level involves an inflammatory response creating both redness and swelling and is to be expected. Long term wound stabilization and connective tissue repair is a complex process which takes months to complete. Revisional procedures are best delayed for six to 12 months to allow for completion of this maturation process.

In all cases of dento-alveolar trauma peri-operative antibiotics are recommended.

Summary

An outline and review of basic anatomic and physiological principles used in the management of dento-alveolar trauma is presented to assist the practising dentist whose interest is directed toward the treatment of injury. Δ

Richard G. Stapleford, DDS, FRCD(C) is Chief of Oral and Maxillofacial Surgery and Dentistry, Hotel Dieu Hospital, Windsor, Ontario, and Clinical Assistant Professor, at the University of Detroit, Department of Orthodontics, Detroit, Michigan.

Diplomate, American Board of Oral and Maxillofacial Surgery.

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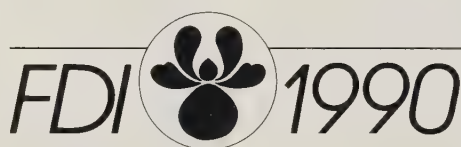
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JOURNAL

Malocclusion: Dentaire ou squelettique?

D.S. Precious, DDS, MSc, FRCD(C)* et A. Audet, DDS, MD, FRCD(C)**

SOMMAIRE

Dans cet exposé, nous allons démontrer une méthode simple et pratique, permettant au dentiste d'évaluer cliniquement et radiologiquement une malocclusion afin de déterminer si celle-ci est purement dentaire ou squelettique.

ABSTRACT

This article presents a simple rapid and practical method, based both on clinical and radiographic examinations, which the dentist can use to the patient's advantage in differentiating dental from skeletal malocclusion.

Introduction

Voilà une question à se poser avant d'entreprendre un traitement orthodontique ou d'extraire une dent dans un but orthodontique.

Le bon alignement des dents, leur bonne orientation, et donc une bonne occlusion, ne sont possibles que si les bases osseuses qui supportent les arcades alvéolo-dentaires ont elles-mêmes de bons rapports réciproques.¹

L'analyse de la relation entre les maxillaires, ainsi que des tissus mous environnants, sur la téléradiographie de profil, comme complément à un examen clinique de la face et des dents, nous permet de mettre en évidence les dysmorphoses dento-faciales et donne des renseignements précieux sur leur étiopathogénie.²

Dans cet article, nous exposerons une méthode pratique relativement simple et

rapide permettant au dentiste d'évaluer cliniquement et radiologiquement le patient présentant une malocclusion afin de déterminer si celles-ci est purement dentaire ou bien d'abord squelettique.



Figure 1 Espace inter-labial qui indique un excès vertical dans la hauteur de la face.



Figure 2 Asymétrie des lèvres chez cette patiente qui porte les séquelles d'une fente labio-maxillo palatine.

* Head, Department of Oral & Maxillofacial Surgery
Victoria General Hospital
Dalhousie University
Halifax, Nova Scotia
** Chicoutimi, Québec

Examen du patient

L'occlusion interdentaire s'évalue lorsque la mandibule est dans sa position la plus reculée, les dents en contact et les lèvres au repos. Ceci permet d'éviter que le patient se place dans la position qu'il a développée afin de compenser pour sa dysmorphose, que ce soit pour des raisons fonctionnelles ou esthétiques.

A. Examen clinique

L'examen du visage, de face et de profil peut mettre en évidence de nombreux indices nous révélant la présence d'un déséquilibre musculo-squelettique. Voici les anomalies à rechercher.

1. Lèvres:

- accentuation (rétrognathisme) ou effacement (prognathisme) du pli labio-mentonnier
- espace inter-labial (excès vertical) (Fig. 1)
- asymétrie des lèvres (déviation mandibulaire)³ (Fig. 2)

2. Menton:

- hyperactivité des muscles du menton avec de multiples dépressions cutanées (excès vertical) (Fig. 3)
- déficience (rétrognathisme)
- excès (prognathisme)

3. profil:

- visage long ou court⁴
- mandibule proéminente ou déficiente
- pointe du nez affaissée (rétromaxillie)
- nez proéminent (rétrognathisme)
- lèvre supérieure mal supportée (rétromaxillie) (Fig. 4)

4. face:

- déviation de la mandibule ou du menton
- angles mandibulaires à des niveaux différents
- sourire gingival (excès vertical supérieur)

B. Examen dentaire

Les malocclusions peuvent être plus ou moins grossières et parfois ont des caractéristiques qui peuvent nous orienter vers une anomalie des bases osseuses.

1. Béance occlusale:

- parfois due à une mauvaise position de la langue mais souvent la conséquence d'un excès vertical postérieur

2. Labialisation des incisives supérieures:

- lorsque la lèvre inférieure se place derrière les incisives supérieures dans la déglutition (rétromandibulie, pro-prémaxillie)

3. Surplomb vertical excessif:

- s'accompagne parfois d'une occlusion traumatique au palais (rétromandibulie).

C. Examen radiologique

Sur la radiographie céphalométrique de profil standard, ou mieux encore sur une téléradiographie de profil⁵ incluant le crâne, (Fig. 5) la face et la colonne cervicale, on peut, à partir de 5 points de référence, facilement identifiables, utilisés dans l'analyse architecturale et structurale de Delaire, tracer 2 lignes qui nous permettront de déterminer s'il y a un déséquilibre antéropostérieur des maxillaires: et si oui, à quel niveau il se situe et de quelle amplitude il est.

1. Point N:

- Situé à la jonction des sutures fronto-nasale et maxillo-nasale; il se repère en suivant de haut en bas et devant en arrière la suture fronto-nasale, du nasion à la suture maxillo-nasale. (Fig. 6)

2. Point Clp:

- (point clinoidien postérieur) situé au sommet de l'apophyse clinoidienne postérieure de la selle turcique (Fig. 7)

3. Ligne C₃:

- Elle joint N à Clp (Fig. 8)

4. Point FM:

- (point fronto-maxillaire) Correspond au milieu de l'extrémité supérieure de l'apophyse montante du maxillaire supérieur au niveau de C₃. (Fig. 9)

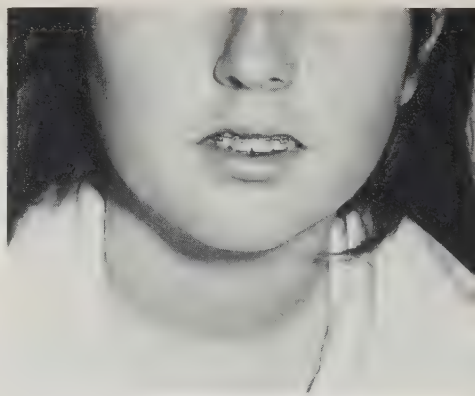


Figure 3 Hyperactivité des muscles du menton avec de multiples dépressions cutanées.



Figure 4 Une jeune fille qui présente une lèvre supérieure mal-soutenue à cause d'une rétrusion du maxillaire supérieur.

5. Point NP:

- Correspond au versant antérieur de l'orifice d'entrée du canal nasopalatin. (Fig. 9)

6. Point ME:

- (point menton osseux) Correspond au point de rencontre de la courbure postérieure de la symphyse et du bord basilaire de la mandibule. (Fig. 9)

7. Ligne CFI:

- Elle est tracée par FM en donnant à l'angle C₃-CFI, une valeur différentielle selon l'âge et le sexe.
- | | |
|----------------|-----|
| Chez l'enfant: | 85° |
| Chez la femme: | 85° |
| Chez l'homme: | 90° |

Normalement, CFI passe par:

- FM
 - NP
 - Le versant distal de la couronne de la canine supérieure
 - L'apex de l'incisive inférieure
 - ME
- Dans les dysmorphoses faciales, ces rapports sont plus ou moins modifiés.

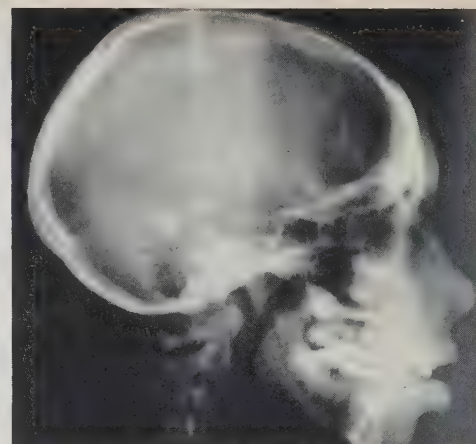


Figure 5 Une téléradiographie de profil incluant le crâne.

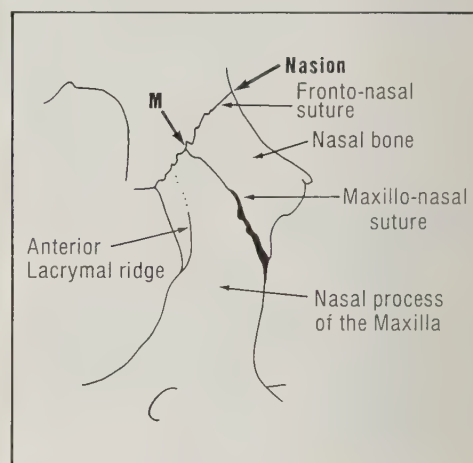


Figure 6 Point N: Nasion.

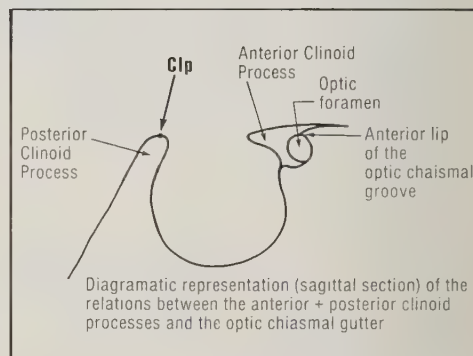


Figure 7 Point Clp: clinoidien postérieur.

Ainsi on peut mettre en évidence les anomalies suivantes:

- rétro ou promaxillie (selon la position de NP)
- mésio ou disto-version de la canine supérieure
- pro ou rétro-alvéolie inférieure
- pro ou rétrognathie mandibulaire (Fig. 10)

L'axe des incisives est aussi facile à déterminer:

- le grand axe de I doit passer par NP
- le grand axe de I doit être à 90° par rapport au plan mandibulaire

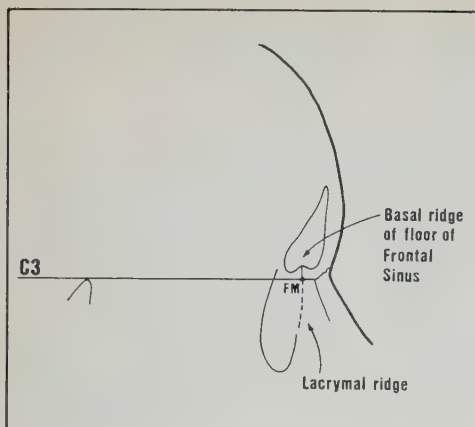


Figure 8 Ligne C₃.

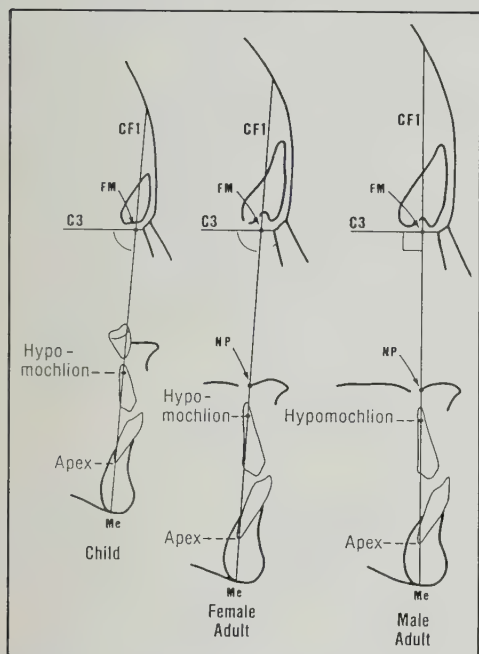


Figure 9 Ligne CF₁ chez l'enfant, chez la femme et chez l'homme.

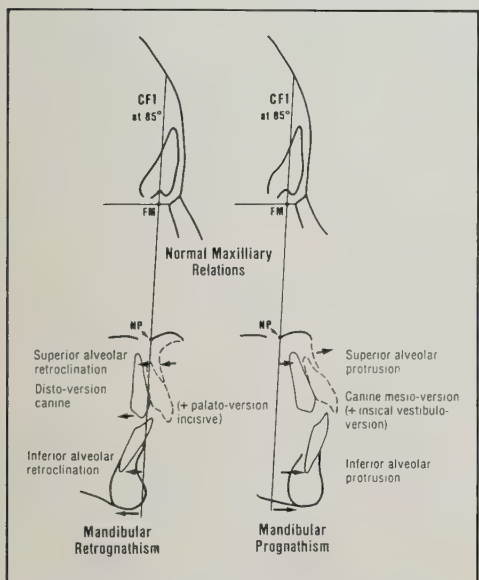


Figure 10 Quelques dysmorphoses faciales par rapport à la ligne CF₁.

Discussion

Lorsque nous évaluons une malocclusion, nous devons d'abord s'assurer que le problème dentaire n'est pas la conséquence d'un déséquilibre entre les bases osseuses. Une évaluation systématique de la face, de la relation dentaire et de la radiographie céphalométrique doit être faite avant d'envisager un traitement orthodontique mais surtout avant d'extraire des dents pour des fins orthodontiques; il faut d'abord s'assurer que la malocclusion dentaire est due à un manque d'espace et non pas à une dysmorphose dento-faciale.

L'analyse architecturale et structurale crânio-faciale de Delaire est une étude précise de l'état des structures osseuses et des parties molles avoisinantes qui nous donne des renseignements précieux sur l'étiopathogénie des dysmorphoses dento-faciales et leur traitement. En s'inspirant de cette analyse, en utilisant quelques points de référence et en traçant deux lignes, on peut facilement objectiver les déséquilibres maxillo-mandibulaires dans le plan antéro-postérieur; l'examen clinique nous permet d'identifier les problèmes dans les plans vertical et latéral.

En identifiant bien les problèmes, on peut mieux planifier le traitement. S'il y a

une anomalie squelettique, la correction doit être de deux ordres: orthodontique et chirurgicale. Le traitement doit nous permettre de réaliser l'équilibre musculo-squelettique et dentaire afin de rétablir une fonction masticatrice normale et d'obtenir un résultat stable et esthétique. Δ

Acknowledgements

The authors wish to thank Dr. D. Morais, Visiting Fellow, Victoria General Hospital, Halifax for his assistance in the preparation of the figures.

Les auteurs aimeraient remercier le Dr D. Morais assistant étranger, Victoria General Hospital, Halifax, pour sa précieuse collaboration.

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Ridge reconstruction with hydroxylapatite: potential and shortcomings

Paul Mercier, DDS, FRCD(C)

ABSTRACT

Residual ridge resorption leading to masticatory difficulties does not only modify eating habits but may also affect the gastrointestinal system. Facing such a serious problem, the dental profession has the responsibility of proposing effective methods that can be applied to most individuals. Over and above socio-economic reasons, ridge reconstruction with hydroxylapatite has other distinct advantages over implants. This material does preserve the residual bone as it is placed over existing structures without any bone loss, and can thus be applied to any atrophy case. It can be molded to create a very retentive ridge form for dentures and to correct abnormal ridge relationships. Finally, it is totally isolated from oral microbionics. Most of the complications reported can be avoided by proper surgical techniques. The most serious one is occasional resorption of the material itself for which newer osteogenic materials now in the process of being developed might afford a solution.

ABRÈGE

La résorption des crêtes résiduelles modifie non seulement les pratiques alimentaires mais peut aussi entraîner des problèmes de santé. La profession dentaire doit développer des approches thérapeutiques efficaces et qui s'appliquent à l'ensemble des individus. Mises à part les considérations socio-économiques qui favorisent l'hydroxylapatite, cette approche présente des avantages marqués sur les implants. Il n'y a pas de perte osseuse puisque la reconstruction se fait à partir des bases résiduelles et peut ainsi s'appliquer à n'importe quel type d'atrophie. Le matériau peut être moulé pour donner les formes les plus retentives tout en corrigeant les rapports intermaxillaires inver-

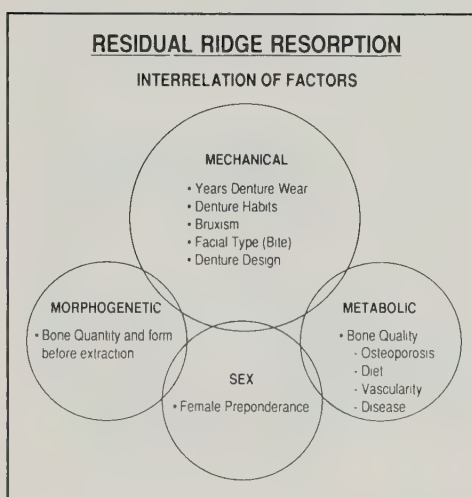


Fig. 1 Multiple interrelated factors involved in residual ridge resorption.

sés suite à l'atrophie. Enfin, le matériau d'implantation est totalement isolé des bactéries de la bouche. Les complications telles que forme de crête inadéquate, extrême sensibilité ou paresthésie peuvent être évitées par l'emploi de techniques chirurgicales judicieuses. C'est la résorption des particules à très long terme qui pose le plus grand point d'interrogation. Heureusement, des protéines servant à fabriquer de l'os et devant être associées à l'hydroxylapatite sont en train d'être développées.

Denture wear inevitably creates residual ridge resorption to an extent that depends on a multiplicity of factors (Fig. 1). People of either sex with many years of denture wearing associated with the harmful habit of keeping them in their mouth during sleep, with a history of bruxism or with a strong bite and with ill-fitting dentures are prime candidates for severe atrophy affecting mainly the mandible. Women are particularly disadvantaged by the morphogenetic factor of having jaws of smaller volume, by the

metabolic factor of osteoporosis, especially after menopause, and by having had their teeth extracted at an earlier age than men in general.

Loss of ridge height leading to severe masticatory handicap is a health problem of tremendous magnitude although the exact number of people affected has never been estimated. We can only extrapolate from known statistics on edentulism and from longitudinal studies on ridge resorption in order to estimate that the eating habits of a large segment of the population of denture wearers are daily affected. Few studies have been published on possible relationships between mastication and digestion. A recent study¹ carried out with the help of a gastroenterologist among patients undergoing ridge reconstruction has shown that 60 per cent are reporting gastrointestinal problems of the upper and/or lower tract and frequent remission or improvement of their post-prandial malaise or constipation with the placement of functional dentures.

As the renewal of dentures over atrophic ridges has strong limitations, surgical methods must be utilized. Marked progress has been accomplished with the advent of two biomaterials: hydroxylapatite (HA) for ridge reconstruction and titanium for implants. The latter solution is appealing since it leads to fixed or semi-fixed dental rehabilitation. Another reason for the popularity of implants is a technique based on a rigid surgical protocol and sound basic research in bone physiology. This successful approach is in contrast with hydroxylapatite which became rapidly available for clinical use, once animal and human tests showed its biocompatibility. A variety of techniques have been described. Some surgeons would favor a closed tunnel approach for insertion, others an open one resulting in frequent spillage of parti-

cles into adjacent tissues. To prevent this complication, painful solutions for the patient such as splints or tissue expanding devices were proposed. Some would insert the material underneath the periosteum, its proper place and others under mucosa as they release the periosteum in order to free muscle attachments and to avoid a secondary procedure. Consequently, pain on pressure is frequently reported as the particles are only covered by delicate and non-keratinized mucosa. Some would routinely release muscle interferences by a secondary procedure and use skin as a mandibular denture bearing tissue that has the main qualities of being firm and keratinized. Others would resort to this second phase of treatment only when their first attempts had failed. Very few authors would insist that the primary aim of the treatment is not to augment the ridge but to provide ridge forms that can assure denture retention.

It is the object of this article to present the potential of hydroxylapatite and its shortcomings in light of the experience gained at the Maxillary Atrophy Clinic during reconstruction of close to five hundred resorbed ridges over the last five years.

Potential

The dental profession and to a lesser degree the medical one cannot deny a certain responsibility for the high number of people, some very young, who have lost their teeth, especially in the Province of Quebec. There are two ways to consider the challenge of developing methods to take care of this problem of edentulism that may affect the general health of the individual. One is based on elitism which, while aiming at the highest degree of proficiency, excludes all patients with limited budgets or too severe and time-consuming cases. The other attempts to find methods applicable to all individuals that can be worked out at least partially within the scheme of public or private insurance plans. In this respect, ridge reconstruction with alloplasts supersedes the implant solution.

Over and above socio-economic reasons, ridge reconstruction with hydroxylapatite has three distinct advantages over implants:

1. Bone preservation.
2. Correction of inadequate ridge form and adverse inter-ridge relationships.
3. Total isolation from oral microbials.

Bone Preservation

The most important advantage of HA over former techniques of reconstruction

and over implants is the preservation of bone as the material is placed over the existing structures. The residual structures of the jaws are used as a foundation to support the material. It is no longer necessary to remodel a sharp crest, to excise the genial tubercles to make way for the denture flange or to mobilize large segments of bone to augment severely resorbed ridges. All of these procedures create bone loss. It is the same case for implants as the crest of a narrow ridge case is often removed to prepare the site for implantation.

The onlay concept of augmentation has also some esthetic advantages. Since the ridge is built up from the base, less chin detachment is necessary. Muscle release limited to the superior fibres of the mentalis muscles allows enough extension for the denture flange to remodel the labio-mental fold that has frequently disappeared with ridge atrophy. Implants cannot reproduce a normal chin-lip contour in these instances unless a concomitant vestibuloplasty is performed and an overdenture used.

Correction of Inadequate Ridge Forms and Adverse Interridge Relationships

Before HA became available, ridge reconstruction was governed by the form of the residual ridge. If it was tapered it remained so, even after muscle release. In the case of augmentation with osteotomies and bone grafts, the final shape depended on the limitations of raising narrow segments and the uncertainties of bone remodelling.

With HA it is possible to provide in a predictable manner ideal ridge forms leading to denture retention that can be com-

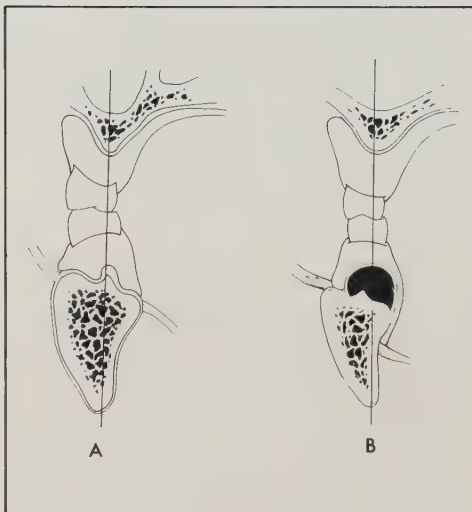


Fig. 2a) Dentures mounted outside ridges to correct inverse ridge relationship. **b)** Correction with hydroxylapatite placed medially. Retentive "comma-shaped" ridge form with lowering of the floor of the mouth.

pared to that provided by implants and overdentures. It is also possible to change abnormal inter-ridge relationships in all three planes, sagittal, vertical and antero-posterior. Ridge resorption often creates a crossbite situation in the posterior regions as the maxilla reduces in width and the mandible widens to its base. Placement of the material over the lingual side of the mandibular ridge where the teeth were originally present allows correction of the crossbite with the teeth mounted directly over the ridges (**Fig. 2**). The gain in ridge height places the denture occlusal table in closer proximity to the crest for better stability and control of the vertical dimension. Class III ridge relationships can be corrected by placing HA more toward the lingual side in the anterior region of the mandible or the buccal side for Class II. As stated by Laney² and Desjardins,³ implants have limited applications in Classes II and III unless the abnormal jaw relationship is first corrected.

Total isolation from oral microbials

Hydroxylapatite is buried underneath the periosteum and does not communicate

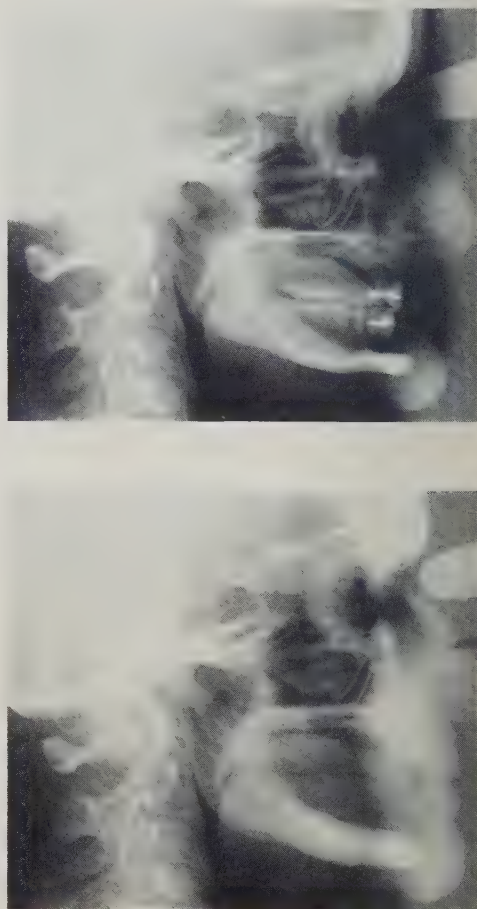


Fig. 3a, b) Correction of extremely severe atrophy of the mandible and abnormal ridge relationships with hydroxylapatite.

with the oral cavity. The daily hygienic care of a removable denture is also simple. It has been shown⁴ that a bacterial flora is present at the interface of implants with the gingiva and that this flora is made up of pathogens when oral hygiene is deficient. In the same study of the Branemark group 44 per cent of cases investigated showed bleeding on probing of the gingival crevices. This finding is seen as less damaging to the surrounding tissues of implants, we are led to believe, than it would be to periodontium of the natural teeth. It was found in another study⁵ that lack of oral hygiene is the most important factor associated with bone loss around osseointegrated implants.

The following case illustrates the versatility of ridge reconstruction with hydroxylapatite. It is one of a 61-year-old woman presenting with severe mandibular atrophy, acquired Class III jaw relationship and reduced vertical dimension. The mandibular ridge was reconstructed in two stages: one for augmentation with HA particles and the other for ridge extension (six weeks later) by total lowering of the floor of the mouth, vestibuloplasty and skin graft. Note on the cephalograms and the clinical views (Figs. 3a, b, 4a, b) the improved ridge form and the inter-ridge relationships correction in three planes allowing fabrication of a retentive mandibular denture (Fig. 5). The esthetic gain is shown (Fig. 6a, b) as the counterclockwise rotation of the mandible causing prognathism is corrected by reestablishing proper vertical dimension.

Shortcomings

Desjardins⁶ has summarized common problems in the use of hydroxylapatite: incorrect placement of material leading to unsatisfactory ridge form, extrusion of material with inadequate soft tissue coverage and neurosensory disturbances. We rarely encounter these severe complications with the technique utilized in our clinic. This involves in all instances skin grafting of the mandible at a second stage of treatment.^{7,8} Minor problems such as wound dehiscence after insertion with a little material release or ulceration over the crest at the time of skin graft splint removal occur occasionally. These, however, are self-limiting. HA has the peculiar property of allowing healing around each particle. Some particles might be lost leaving a defect. But a total rejection has never been encountered as reported in two follow-up studies^{9,10} of a large number of cases.

The most serious complication, one which is rarely mentioned in the literature is material resorption. It should not be mistaken for material compaction, a natural event occurring during the first year after insertion. Dense hydroxylapatite, a supposedly non-resorbable material does resorb (Fig. 7a, b). We have observed that in some cases the material becomes less dense or frankly disappears. The event corresponds at times with a definite change of ridge form. In other cases, when there is no clinical evidence of resorption, the idea has been advanced that HA is being replaced by immature bone that has not yet reached an advanced stage of calcification. The phenomenon cannot be elucidated unless a re-entry procedure is performed with biopsy at both the superior periosteum-material and inferior bone-material inter-



Fig. 4a, b) Change of ridge form following two-stage reconstruction with hydroxylapatite augmentation and with total lowering of the floor, vestibuloplasty and skin graft.

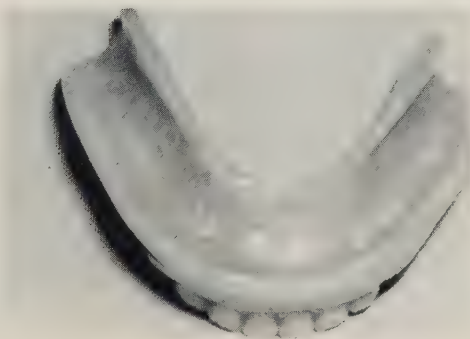


Fig. 5 Retentive "comma-shaped" denture design with deep lingual undercuts and defined mucobuccal fold.

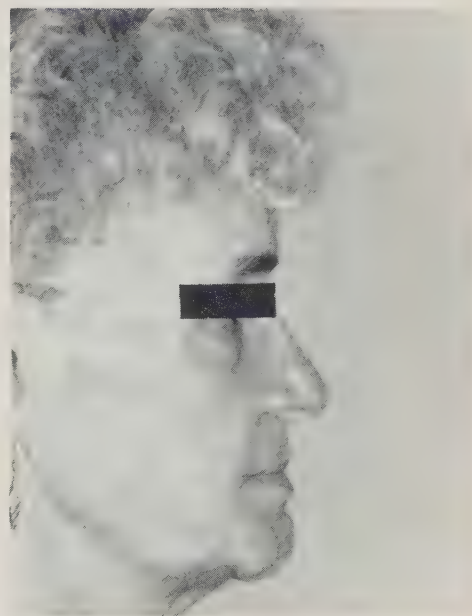
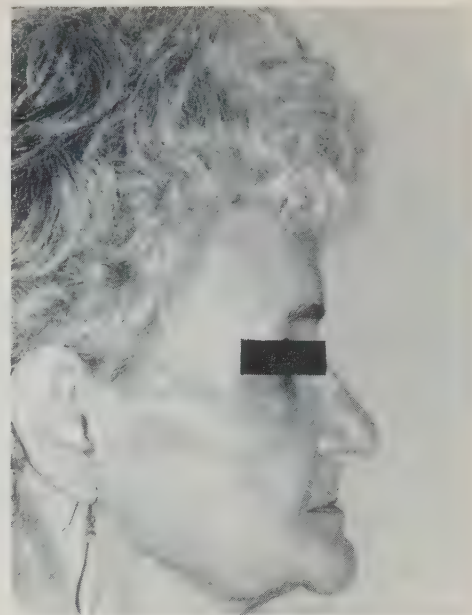


Fig. 6a) Counterclockwise autorotation of mandible due to ridge resorption and creating prognathism. **b)** Esthetic gain following ridge reconstruction and reestablishment of proper vertical dimension.

faces. Such studies have rarely been conducted on humans. Donath¹¹ found HA granules within the cytoplasm of some macrophages in a resected mandible that had been previously augmented with hydroxylapatite. In dogs, Chang¹² has shown that subperiosteal hydroxylapatite developed strong attachments to the bone in partially bone decorticated or non-decorticated specimens, but none when implanted supra-periosteally. Through clinical experience, we have found mobility after firm pressure application over some HA-augmented ridges that did not have a residual supporting crest. This finding might suggest that there is no true bone bonding and in depth penetration of

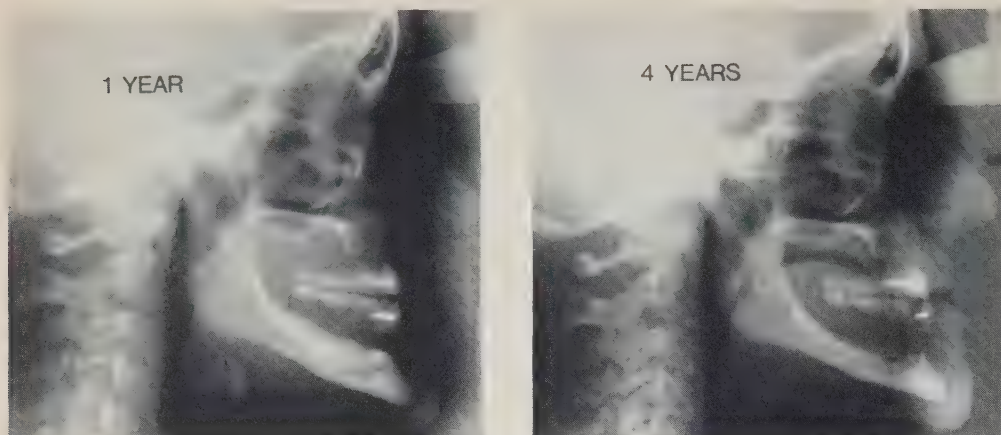


Fig. 7a, b) Resorption of hydroxylapatite particles after 4 years.

osseous tissue, when large quantities of HA particles are used. It can be foreseen that with time some of those ridges will undergo more changes as the material is probably encapsulated by fibrous tissue. Reinsertion of hydroxylapatite underneath the skin graft might be an immediate solution. A more permanent one exists with the development of newer materials. Already, we have found that the HA-Collagen* composite is more stable for large augmentation. Tissue binding elements derived from blood components, fibrinogen and thrombin** might also be helpful for certain ridge reconstructions. Hopefully, some of the bone proteins that have been isolated will soon be mass-produced. They could be incorporated into HA particles to produce true osteogenesis at the interfaces and within the implantation site. We could then address ourselves directly to the main problem of denture wear: that of replacing bone loss underneath dentures. △

Dr. Paul Mercier
Director, Maxillary Atrophy Clinic
St. Mary's Hospital
3830 Lacombe Avenue
Montréal, Qué. H3T 1M5
Canada
Tel. (514) 344-3264

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- * "Alveoform", Collagen Corporation, Palo Alto, CA
- ** "Tisseel", Immuno (Canada) Ltd., Toronto, Ont.

Obituaries/Nécrologie

Boniuk, Mitchell: Dr. Boniuk was a graduate from the Faculty of Dentistry of Dalhousie University, Halifax, in 1953. He had been practising dentistry in Scarborough, Ont.

Buckley, Herbert Alan: A graduate of the University of Toronto in 1955, Dr. Buckley conducted a dental practice in Ottawa.

Clarke, George K.: A graduate of the University of Toronto in 1935, Dr. Clarke had served many years as Dental Officer of Health in the Region of Hamilton-Wentworth. He had also served as a Lt. Col. in the Royal Canadian Dental Corps.

Hannigan, Lionel Victor: A graduate of the University of Toronto in 1950, Dr. Hannigan had practised dentistry in Oakville, Ont., for 30 years.

Smith, Neil C.: A graduate of the University of Toronto in 1925, Dr. Smith had practised in Markdale, Ontario. He was a Major in the Royal Canadian Dental Corps during the Second World War. Dr. Smith was a Life Member of the Canadian Dental Association.

Tarshis, J.P.: A graduate of the Royal College of Dentists of Canada in 1924, Dr. Tarshis practised in North York, Ontario. He was a Life Member of the Canadian Dental Association.

Did you know?

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In genital herpes, appropriate examinations should be performed to rule out other sexually transmitted diseases.

These indications are based on the results of a number of double-blind, placebo-controlled studies which examined changes in virus excretion, healing of lesions and relief of pain. Because of the wide biological variations inherent in herpes simplex infections, the following summary is presented merely to illustrate the spectrum of responses observed to date. As in the treatment of any infectious disease, the best response may be expected when therapy is begun at the earliest possible moment.

In immunocompromised patients, 93% were virus negative after 5 days of topical ZOVIRAX therapy whereas only 35% of placebo recipients were virus negative at the same time.

In patients with herpes labialis, there was a significantly greater decrease in the amount of virus excreted after one day of therapy in those receiving ZOVIRAX within 8 hours of the onset of cold sores when compared to identically treated placebo patients.

Because complete re-epithelialization of herpes-disrupted integument necessitates recruitment of several complex repair mechanisms, the physician should be aware that the disappearance of visible lesions is somewhat variable and will occur later than the cessation of virus shedding. All immunocompromised patients who received topical ZOVIRAX had healed their lesions 23 days after the initiation of a 10-day course of therapy. 75% of placebo patients had healed lesions at that point. Some placebo patients continued to have visible lesions for more than 30 days.

Pain associated with herpes infections is highly variable in frequency and intensity. One hundred percent of the ZOVIRAX-treated immunocompromised patients were pain-free by day 23 versus 70% of placebo-treated patients.

Whereas cutaneous lesions associated with herpes simplex infections are often pathognomonic, Tzanck smears prepared from lesion exudate or scrapings may assist in the diagnosis. Positive cultures for herpes simplex virus offer the only absolute means for confirmation of the diagnosis.

CONTRAINDICATIONS: ZOVIRAX Ointment 5% is contraindicated for patients who develop hypersensitivity or chemical intolerance to any of the components of the formulation, such as polyethylene-glycol.

WARNINGS: ZOVIRAX Ointment 5% is intended for topical use only and should not be used in the eye or on mucous membranes.

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It is not known whether acyclovir is excreted in human milk.

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Safety of use of ZOVIRAX Ointment 5% in children has not been established.

There exist no data, at this time, which demonstrate that the use of ZOVIRAX Ointment 5% will prevent transmission of infection to other persons.

Since most cutaneous herpes simplex virus infections result from reactivation of latent virus, it is unlikely that ZOVIRAX Ointment 5% will prevent recurrence of infections when applied in the absence of signs and symptoms. ZOVIRAX Ointment 5% should not be applied in an attempt to prevent recurrences; application should commence only at the earliest prodromal sign of disease onset.

Although clinically significant viral resistance associated with the use of ZOVIRAX Ointment 5% has not been observed, this possibility exists.

ADVERSE REACTIONS: Because ulcerated genital lesions are characteristically tender and sensitive to any contact or manipulation, patients may experience discomfort upon application of ointment. In the controlled clinical trials, mild pain (including transient burning and stinging) was reported by 103 (28.3%) of 364 patients treated with ZOVIRAX Ointment 5% and by 115 (31.1%) of 370 patients treated with placebo; treatment was discontinued in 2 of these patients. Other local reactions among acyclovir-treated patients included pruritus in 15 (4.1%), rash in 1 (0.3%) and vulvitis in 1 (0.3%). Among the placebo-treated patients, pruritus was reported by 17 (4.6%) and rash by 1 (0.3%).

In all studies, there was no significant difference between the drug and placebo group in the rate or type of reported adverse reactions.

SYMPTOMS AND TREATMENT OF OVERDOSAGE: Overdosage by topical application of ZOVIRAX Ointment 5% is unlikely because of limited transcutaneous absorption.

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- (2) transmission of infection to other persons.

Therapy should be initiated as early as possible following onset of signs and symptoms.

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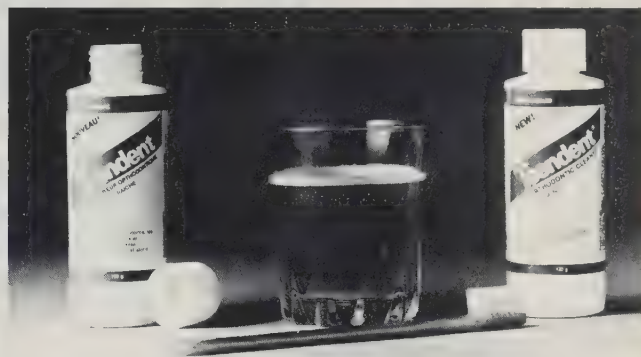
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Recruitment and compliance in school-based FMR programs

Jean-M. Brodeur, PhD

Paul L. Simard, DDPH

Marie Demers, MSc

Laval, Quebec

André-P. Contandriopoulos, PhD

Geneviève Tessier, MSc

Yves Lepage, PhD

Montreal

Diane Lachapelle, MSc

Laval, Quebec

ABSTRACT

A study on the effectiveness of a fluoride mouthrinse program was conducted over a 20-month period among 610 children attending grade 5 in two unfluoridated communities. The results showed that the preventive agent had no significant cario-static effect. Participation and compliance problems were investigated as possible explanations. Comparisons were made between children who refused to participate or dropped out of the program and those who completed it, to see whether group-specific characteristics could be responsible for the low reduction of caries resulting from the mouthrinse. The relationship between compliance and DMFS increment was also examined.

The analysis revealed that the children who refused to participate in the study or who dropped out showed sociodemographic characteristics associated with a high caries risk. This suggests that children who need the program most might not benefit because of low participation or failure to remain in the program. Moreover, the DMFS increment over the 20-month period was lower among the children exposed to 50 rinse sessions or more.

SOMMAIRE

Durant une période de 20 mois, on a effectué une étude sur l'efficacité d'un programme de rince-bouche avec un produit fluoruré auquel ont pris part 610 enfants de cinquième année dans deux localités où l'eau n'était pas fluorurée. Les résultats ont démontré que

l'agent de prévention n'a eu aucun effet cariostatique marqué. Afin de trouver des explications, on s'est demandé s'il y avait eu des problèmes touchant la participation et l'assiduité au programme. On a donc comparé les enfants qui ont suivi le programme au complet à ceux qui ont refusé d'y participer ou l'ont abandonné après un certain temps, afin de pouvoir découvrir si des caractéristiques particulières à chaque groupe n'expliqueraient pas la faible réduction du nombre de caries à la suite du rince-bouche. On a aussi étudié les rapports entre l'assiduité au programme et l'augmentation de l'indice CAO.

L'étude a révélé que les enfants qui ont refusé de participer au programme ou l'ont abandonné présentaient des caractéristiques socio-démographiques liées à un risque élevé de caries. Aussi pense-t-on que ce sont les enfants ayant le plus besoin de ce genre de programme qui en profitent le moins parce qu'ils refusent d'y participer ou d'aller jusqu'au bout. Par ailleurs, l'augmentation de l'indice CAO durant les 20 mois du programme était plus faible chez les enfants qui avaient participé à 50 rinçages ou plus.

Introduction

The results of an evaluation of a fluoride mouthrinse program carried out in two unfluoridated Quebec communities among grade 5 children revealed that this therapeutic agent had no significant cariostatic effect after 20 months of program application.¹ These data corroborate the results of the National Preventive Dentistry Demonstra-

tion Program,² which showed that fluoride mouthrinse, administered on a weekly basis to grades 1, 2 and 5 children, who were given fluoride tablets at the same time, did not reduce caries significantly, and question the generalization of this program in schools. A program carried out in Denmark and involving grades 2, 3 and 4 children produced similar findings after three years of application of mouth-rinses every two weeks.³

This low effectiveness of mouthrinse in the studies using longitudinal control groups was attributed to the decline in caries over the past 15 years resulting from the widespread use of various sources of fluorides, thereby making the generalized application of this measure questionable,⁴ and to the compliance problems encountered in the application of fluoride mouthrinse programs on a community basis.⁵

Despite the relatively high attrition rate of certain studies,^{2,6} few attempts have been made to compare children lost during the trial with those who completed the program to see whether characteristics of one of the two groups could be responsible for the absence of the cario-static effect of the mouthrinse. It is possible that children who refuse to participate in the program or who drop out are those who might benefit most from its application.

Usually, mouthrinse evaluation studies state the maximum number of rinses but the number of rinses the individual actually participated in is rarely reported. A higher DMFS increment could be expected from the children with a low participation rate in the rinses, leading to a lower program effectiveness.

This study examined problems related to participation and low compliance as possible explanations for the absence of cariostatic effect of fluoride mouthrinse after 20 months of weekly application among fifth graders in unfluoridated communities. Non-participation and loss to follow-up can lead to lower effectiveness if the children involved show characteristics differing from those remaining in the program. In the case of compliance, a low attendance at the rinsing sessions could be responsible for the low effectiveness of the program.

Methods

The study was conducted in two unfluoridated communities of Québec (St-Jérôme and Trois-Rivières areas). In each of these, grade 5 classes were randomly selected and assigned to the experimental and control groups. The 610 children chosen had a mean age of 10.5 years at the beginning of the study. Of these children, 546 agreed to participate and answered the questionnaire; 304 children were assigned to the mouthrinse group and 242 to the control group. For the initial dental examination, the participation rate was 80.2 per cent (489 children) of the original 610 selected. Of that number, 84.0 per cent completed the final examination (411), which gives an attrition rate of 32.6 per cent for the period under study (199/610) (Fig. 1).

Over a 20-month period, from October 1983 to May 1985, the children in the experimental group rinsed their mouths once a week with a neutral 0.2 per cent NaF solution for one minute. They received a maximum of 72 rinses (36 per school year). A record was kept of each child's participation. The intervention took place in the classroom under the supervision of the teacher and in cooperation with the school nurses and dental hygienists, thereby reproducing the conditions existing in the application of such program. The duration and frequency of the rinses as well as the quality of the mouthwashes were monitored. During the period under study, the children of the experimental and control groups were exposed to the same dental interventions, except for the experimental condition under study.

Three dentists working in public health dentistry participated in the examinations of the children at the beginning of the study and 20 months later to determine their DMFS index on permanent teeth. Radiographs were not taken during these examinations. The three dentists participated for 11 days in a training and standardization session on the DMFS index and

TABLE I

Participation in the study according to socio-demographic characteristics

Socio-demographic characteristics	Refusal or Drop out		Complete the study		X ²	p
	n	%	n	%		
Type of family						
two parents	113	83.7	373	90.8	4.47	0.034
single parent	22	16.3	38	9.2		
SES level 1 (low)	17	13.2	25	6.1	12.01	0.007
(occupation) 2	32	24.8	107	26.2		
3	53	41.1	142	34.8		
4 (high)	27	20.9	134	32.8		
	n	mean (S.D.)	n	mean (S.D.)	t	p
Parents' education	128	11.6 (3.3)	405	12.6 (3.4)	-2.83	0.005
Age of children	123	10.7 (0.7)	411	10.5 (0.4)	2.78	0.006

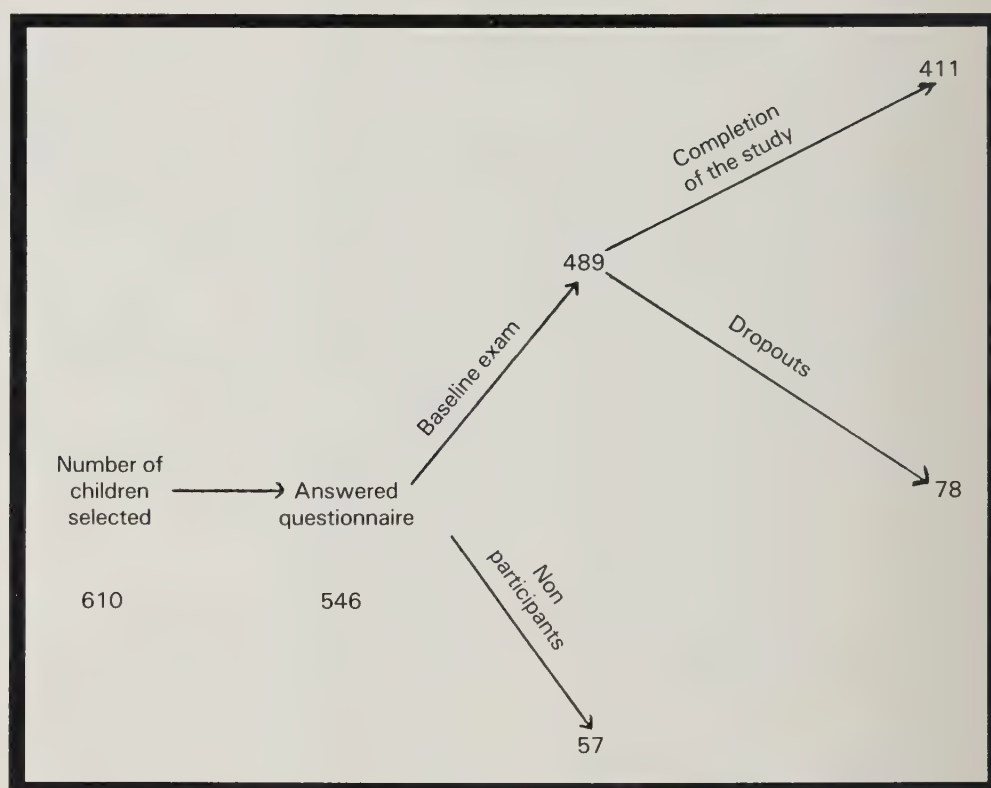


FIGURE 1

Participation in the study.

on each of its components. A training session was carried out before each examination period. Each dentist examined a minimum of 600 surfaces and the kappa statistics based on the DMFS index varied from 0.90 to 0.92 (S.D. = 0.04). Kappa values for carious surfaces only stood between 0.71 and 0.75 (S.D. = 0.04) and for filled surfaces they were between 0.87 and 0.92 (0.04). All these tests were highly significant.

A pre-tested questionnaire was given to the parents of the selected children. It

dealt with the brushing habits, fluoride intake and socio-demographic characteristics of the participants. A three-day food record was also completed by the subjects in the study. Some questions were asked directly to the children during the dental examination. These questions served to establish the comparability of experimental and control groups on socio-demographic characteristics (age, sex, family type, number of children in the family, occupational and educational level of parents, denture wearing among

parents), utilization of dental services, sugar consumption, oral hygiene and intake of other fluorides.

The DMFS indices of the experimental and control groups and the DMFS indices according to the number of rinses children participated in were compared using the t-test. The socio-demographic characteristics of the participants and the non-participants were compared using the χ^2 -test for proportions and the t-test for means.

Results

DMFS prevalence and increment

The baseline data indicated a mean DMFS index on permanent teeth of 5.27 (S.D. = 4.23) for the mouthrinse group and of 5.08 (S.D. = 4.46) for the control group; this difference was not significant ($p = 0.65$). After 20 months of program application, the mean DMFS index was 7.44 (S.D. = 6.26) for the mouthrinse group and 7.41 (S.D. = 5.93) for the control group. The mean increment over the period under study was similar for both groups, namely 2.16 surfaces in the mouthrinse group and 2.33 surfaces in the control group ($p = 0.62$) (Brodeur et al, 1988).

Characteristics associated with non-participants

Children who refused to participate in the study or who dropped out were compared with those who completed the study to see whether a difference between the two groups could be responsible for the low effect of the mouthrinse program. The comparison was based on the answers to the questionnaire completed prior to the application of the program. As expected, only some of the non-participants answered the questionnaire, so the comparison is based on these respondents only. **Table I** indicates that the dropout children showed socio-demographic characteristics different from those remaining in the program: 16.3 per cent came from single-parent families, while this proportion dropped to 9.2 per cent among children who completed the program; twice as many came from families with low SES level; they were significantly older than the other children and their parents were less educated.

Findings indicated that non-participants are slightly older than participants. This difference, although small, is highly significant and can be explained by the presence among the non-participants of older children who repeated a school year.

Compliance of experimental subjects

The number of rinses children participated in is presented in **Table II**. The

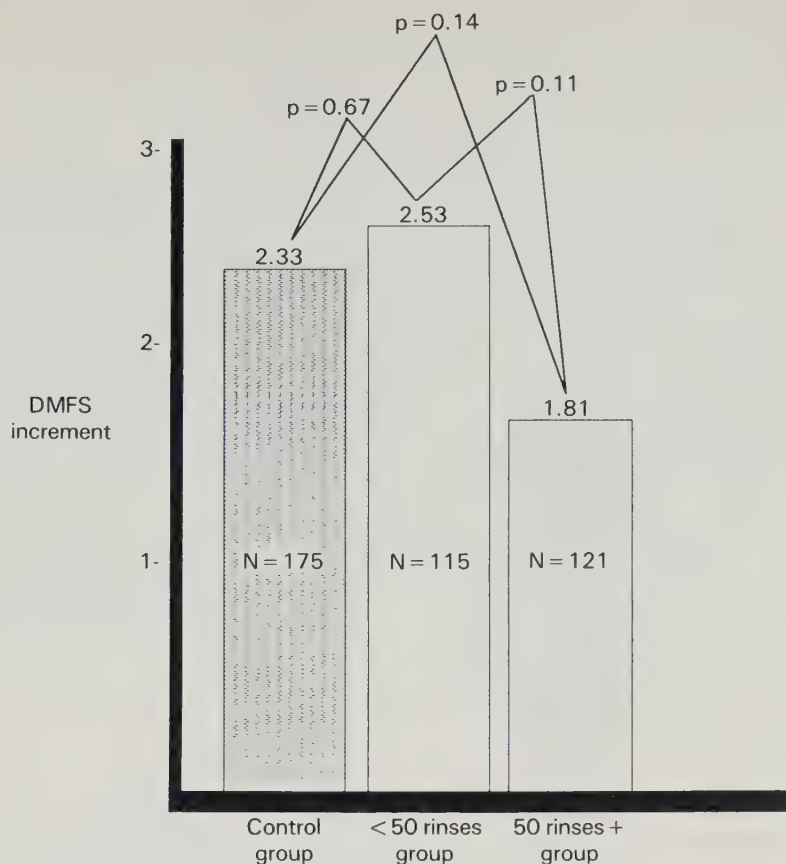


FIGURE 2

Mean DMFS increment between 1983 and 1985 according to compliance.

proportion of children exposed to less than 50 rinses out of a maximum of 72 (36 rinses per school year) was 48.7 per cent. When the DMFS increment was examined according to the number of rinses (**Fig. 2**) the DMFS increment was 1.81 surfaces among children exposed to 50 rinses or more, compared to 2.53 surfaces among children exposed to less than 50 rinses and to 2.33 surfaces among the control group. The difference in DMFS increment between the control group and the 50 rinses or more group was 0.52 surface compared to 0.20 surface for the children with less than 50 rinses. However, these differences were not statistically significant; this could be partly attributed to the size of the standard deviations.

Discussion

Problems related to low participation and low compliance have been investigated to explain the absence of the cariostatic effect of the fluoride mouthrinse in this population. The attrition rate observed in this study was 32.6 per cent over 20 months. This is similar to other studies involving participants of the same age.^{2,6,7} This participation problem, widespread in FMR programs,⁸ may be

TABLE II

Compliance of experimental subjects

Rinses	Children	
n	n	%
< 50	115	48.7
50+	121	51.3

responsible for the low effectiveness of the mouthrinse program in this study. The findings indicate that children who refused to participate in the study or who dropped out showed socio-demographic characteristics associated with a high caries risk.⁹⁻¹¹ This suggests that a portion of the children with the highest caries risk cannot benefit from this program as they do not remain in it.

The reasons for non-participation in topical fluoride application programs have already been explored^{12,13} but the characteristics of the children who refuse to participate or who drop out of the program have rarely been examined. Among adults, participation in prevention programs has been positively associated with socio-demographic characteristics

such as social class,¹⁴ or more specifically, occupational status and education.¹⁵ Socioeconomic status seems to have an impact on preventive health behaviour.¹⁶ Similar findings were observed in the present study. Characteristics associated with non-participation have rarely been studied in the dental field, but a direct link was noted between income, education and occupation, on the one hand, and the frequency of dental visits and the frequency of routine checkups, on the other.¹⁷

Another possible explanation for the low effectiveness of the program lies in the fact that a significant proportion of the participants did not receive a sufficient number of rinses to benefit from the cariostatic effect of the mouthrinse. Only half of the mouthrinse group participated in at least 50 of the rinsing sessions and the DMFS increment was smaller in this group. This low compliance may seem excessive in a clinical trial of the FMR program but this problem has already been noted to a larger extent among high school students.⁸ They found only 28 per cent to 51 per cent of the participants complied with the rinsing sessions at least 16 times out of a possible 30 opportunities during the school year. In the elementary schools, only 35 per cent of the teachers offered the rinse regularly and consistently every week. An insufficient attendance at the rinsing sessions seems to be a common feature of many FMR programs.

For ethical reasons, no placebo group has been used in this study. However, this should not have any effect upon the difference observed in the socio-demographic characteristics of participants and non-participants. The same goes for the compliance: here the difference in DMFS increment was made between two mouthrinse groups and the examiners had no information on the number of times each child participated in the rinse sessions.

A survey carried out in the province of Quebec has already shown that 30.1 per cent of children aged 11 and 12 have 61.0 per cent of the total DMFS and that 61.9 per cent of all the untreated surfaces are found among 9.6 per cent of the children.¹⁸ The same situation was noted in the United States.² If a large number of these children do not participate in the mouthrinse program, the benefit of the program can only be obtained for the children with the lowest prevalence of caries. To maximize the effectiveness of topical fluoride application programs and in view of the costs involved by these measures, it has been suggested to target caries

prevention measures more specifically towards high-risk children.² This would necessarily involve the identification of this risk group and the development of methods to increase its participation in prevention programs, both with respect to enrollment and compliance. Δ

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Drs. Brodeur and Simard, Marie Demers and Diane Lachapelle are on the staff of École de médecine dentaire, Université Laval, Laval, Québec.

Dr. Contandriopoulos and Geneviève Tessier: Groupe de recherche interdisciplinaire en santé, Université de Montréal.

Dr. Lepage: Département de mathématiques et statistiques, Université de Montréal.

Reprint Requests to: **Dr. Jean-M. Brodeur**, École de médecine dentaire, Université Laval, Sainte-Foy, Québec G1K 7P4.

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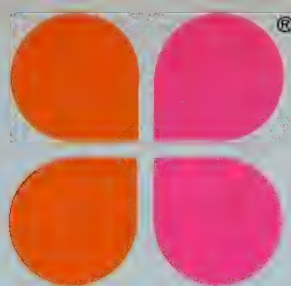
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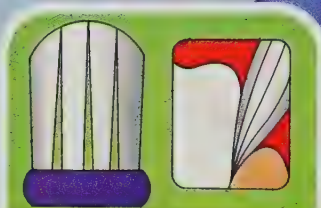
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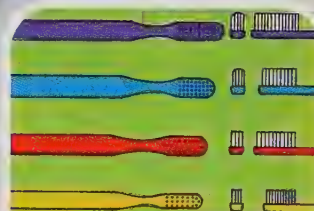
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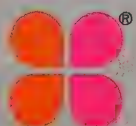
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L'Hypnose clinique

Maurice Bourassa, PhD¹
Université de Montréal

RÉSUMÉ

Nous nous proposons dans le présent article, de définir et de décrire le phénomène hypnotique après avoir effectué un survol historique du sujet. Nous nous attarderons particulièrement sur les concepts de suggestion et de suggestibilité. En conclusion, nous aborderons les diverses applications de l'hypnose en sciences de la santé, faisant en même temps ressortir les dangers inhérents à certains types de recours à l'hypnose.

Mots clés: hypnose, suggestibilité, hypnodontie, hypnose

ABSTRACT

The purpose of this article is to define and describe the hypnosis phenomena. After a brief historical survey, we will discuss the suggestibility concept, and its application in dentistry.

Key words: hypnosis, suggestibility, hypnodontics

Des champs de mysticisme et de la sorcellerie à l'intérieur desquels l'hypnose était jadis enfermée jusqu'aux recherches et théories modernes qui ont vu le jour et se sont multipliées sur l'hypnose depuis la fin de la première guerre mondiale, le phénomène "hypnotique" a donné lieu à plusieurs importantes controverses. Toutefois, actuellement, il semble que l'hypnose soit totalement réhabilitée, tant en ce qui concerne la recherche théorique qu'en ce qui a trait à ses divers domaines d'application. En effet, aujourd'hui, psychologues, dentistes et médecins se penchent sur cette question et explorent les divers apports possibles de l'hypnose dans leurs sphères d'interventions. Il est vrai,

au demeurant, que le vent d'"holisme" qui souffle sur la recherche en sciences physiques, humaines et de la santé contribue largement à la réinsertion de ce phénomène encore mal connu.

I. L'évolution de la perception et de l'étude de l'hypnose au cours des siècles

Les historiens des sciences considèrent que les véritables recherches et réflexions sur l'hypnose commencent avec Messmer, à la fin du XVIII^e siècle¹. Auparavant, on peut affirmer que, dans les civilisations orientales, l'hypnose était considérée, et ce, depuis des millénaires, comme un phénomène naturel quoique mystérieux, dont on faisait usage à des fins d'anesthésie, de repos prolongé, etc. . . En Occident, au XII^e siècle, l'avènement des diverses théologies chrétiennes transforme fondamentalement le statut de l'hypnose: de phénomène naturel, l'hypnose devient un phénomène surnaturel, associé à des formes dénoncées de sorcellerie, de possessions démoniaques, de démence.

Ce n'est qu'en 1775 environ que Messmer², en Allemagne, développe sa théorie du "magnétisme animal", qui consiste à poser l'existence réelle d'un fluide magnétique transmis d'une personne à une autre, lequel rend compte de ce lien mystérieux qui unit l'hypnotiseur et son "patient" et dont les conséquences sont d'ores et déjà douteuses, soit le contrôle, l'abandon, la dépendance, etc. La théorie messmérienne est du reste qualifiée de "fluidité", transmise par l'hypnotiseur et dont les conséquences consistent en certains changements ou inversions des courants électriques à l'oeuvre chez le "patient" et qui rendent compte de ses états "pathologiques". On rapporte que Messmer utilisait des aimants comme "catalyseurs" de ces nouveaux courants magnétiques à induire

chez certains patients, dont l'équilibre magnétique était justement "rompu". Il semble toutefois que Messmer, assez rapidement, minimisa l'importance des aimants et des charges magnétiques, attribuant à un "agent différent" et innomé les vertus curatives par ailleurs observées et décrites. Messmer décrit l'"agent" en terme de "rapports" et les historiens voient déjà là une porte ouverte, une préfiguration des théories plus contemporaines reposant sur la suggestibilité et le transfert, concepts sur lesquels nous reviendrons plus loin. Avec Messmer, le phénomène de l'hypnose réintègre son statut de phénomène physique et naturel, se délestant de toute connotation mystique, religieuse et surnaturelle. L'hypnose dans sa conception mesmérienne, est toutefois le résultat de forces extrinsèques, ce que les théories ultérieures dénonceront.

Les succès de Messmer à la cour de France, les mises en scène fantaisistes desquelles il entourait ses interventions curatives éveillèrent le scepticisme de la médecine officielle qui, après enquête, condamna de telles pratiques. La théorie messmérienne et la recherche sur le magnétisme sombreront, de ce fait, dans un oubli centenaire, parsemé toutefois de certaines expériences capitales. Signalons celles de Baron du Potet qui utilise, à Paris, le magnétisme en anesthésie; celles de John Elliotson qui, avec du Potet, poursuit les mêmes expériences dans un hôpital anglais (Udolf¹). Toutefois, avec l'avènement des anesthésiants chimiques, les découvertes et les pratiques de du Potet et Elliotson seront abandonnées. Vers 1820, un certain abbé Faria, de retour d'un long séjour en Orient, proposa des techniques d'auto-hypnose; c'est à lui également que l'on doit certaines techniques de suggestion, impliquant la motivation du sujet et faisant ainsi passer d'extrinsèque à intrinsèque les conceptions de magnétisme.

En 1845, Braid, un médecin anglais, rejette le messmérisme en s'appuyant sur

¹ Psychologue, professeur agrégé, Département de santé buccale, Faculté de médecine dentaire.

certaines expériences montrant qu'il est possible d'hypnotiser un sujet par simple fixation d'un point. La force hypnotisante ne serait donc plus liée à un fluide transmis par l'hypnotiseur, mais plutôt à une caractéristique intrinsèque au sujet hypnotisé. Braid¹ fonde d'abord sa théorie sur une certaine physiologie du cerveau. Plus tard toutefois, il accordera un rôle primordial à l'attention et à la concentration de l'attention, ouvrant la porte à une "psychologisation" des recherches sur l'hypnose. C'est d'ailleurs lui qui désignera du nom d'hypnose (du grec *hypnos*, qui signifie sommeil) le phénomène antérieurement dénommé "magnétisme animal".

À la fin du XIX^e siècle, les recherches sur l'hypnose (Udolf¹) prennent un nouvel essor, grâce aux travaux de Liébault, Charcot, Bernheim et Freud. À Nancy, le médecin Liébault, dans un livre mal reçu par ses contemporains, émet l'idée que l'hypnose du "sommeil hypnotique" est identique au sommeil naturel bien qu'il soit induit par suggestion, la méthode consistant à permettre au patient de se concentrer sur l'idée de sommeil. On voit ici se profiler l'idée de l'interaction hypnotiseur-patient, laquelle est constamment présente dans les recherches ultérieures. À la même époque, Charcot, à Paris, utilise l'hypnose dans le traitement de patients hystériques. Il s'inscrit en faux contre l'idée de Liébault, d'une assimilation du sommeil hypnotique au sommeil naturel, considérant plutôt l'état hypnotique comme une névrose hystérique artificielle induite, résultant d'une suggestion de sommeil mais provoquant une condition physiologique différente du sommeil. Charcot croit que seuls les hystériques ou ceux ayant de fortes prédispositions pour l'hystérie sont sensibles à la suggestion hypnotique. De ce fait, il associe le sommeil hypnotique à un état pathologique. Nous verrons plus loin que les hypothèses et théories de Charcot trouvent un écho dans les recherches actuelles sur la suggestibilité et l'hyper-suggestibilité. Les recherches et résultats de Charcot ont été bien reçus par l'Académie des sciences et il lui revient d'avoir réhabilité l'hypnose au rang de phénomène scientifique. Le mérite lui revient aussi d'avoir, quoique sommairement, décrit les trois stades de l'induction d'une transe hypnotique, qu'il a nommés catalepsie, léthargie et somnambulisme.

Au même moment, à Nancy, Bernheim², faisant sienne les conceptions de Liébault, s'oppose aux idées de Charcot et postule l'existence d'une aptitude générale, quoique inégalement distribuée, à la suggestibilité chez tous les êtres humains. Il défi-

nit la suggestibilité comme une aptitude innée à transformer une idée en acte et considère l'hypnose comme un état de suggestibilité renforcée, induit par suggestions. Eminent thérapeute, Bernheim utilisera de moins en moins l'hypnothérapie dans sa pratique, considérant que des effets similaires induits par suggestions peuvent être produits chez des individus en état de veille. Bernheim et ses disciples et collègues nommeront cette méthode "psychothérapie".

Au même moment, un certain Sigmund Freud³, neurologue, étudie avec Charcot à l'Hôpital de la Salpêtrière, à Paris. Toutefois, il refuse la polarisation physiologie vs psychologie, dans le débat Charcot/Bernheim au sujet de l'hypnose et de la suggestion. Freud se rend à Nancy auprès de Liébault et Bernheim et, finalement, se rallie, quoique partiellement, aux théories de l'école de Nancy, reconnaissant le rôle moteur de la suggestion dans le processus hypnotique. C'est à travers sa pratique de l'hypnothérapie que Freud développera ses théories de l'inconscient, de la régression, de l'association libre, de l'interprétation et du transfert, se démarquant toutefois des méthodes hypnothérapeutiques classiques fondées sur la suggestion, la réminiscence et la suggestion post-hypnotique ordonnant la dissolution des symptômes. Il dénonce certaines limites, à ses yeux inacceptables, inhérentes à l'hypnothérapie: la dépendance, le transfert libidinal massif propre à l'hypnothérapie et l'inégal degré de suggestibilité manifesté par les individus. On sait, depuis, les limites émotionnelles qui amenèrent vraisemblablement Freud à se démarquer de toute approche impliquant un contre-transfert actif. Les critiques actuelles adressées à la psychanalyse orthodoxe ne cessent de mettre en lumière ce fait. On peut cependant affirmer que la psychanalyse est née de l'hypnothérapie. Cependant Ferenczi², s'opposant aux théories freudiennes, proposa, au même moment, une théorie de l'hypnose fondée sur le transfert actionné par des mécanismes dits de qualification, la théorie freudienne se fondant, pour sa part, sur une théorie du transfert actionné par frustrations. Dans les deux cas, par contre, les problèmes de comportement de contre-transfert restent entiers. La théorie de Ferenczi, néanmoins, annonce les recherches de Pavlov sur le conditionnement (incidemment Pavlov incorpora l'hypnose dans ce champ), ainsi que certaines théories modernes des rôles et de la communication.

L'essor phénoménal de la psychanalyse a rapidement relégué au second plan les recherches sur l'hypnose et l'hypnothérapie

en Occident. Parallèlement toutefois, Pavlov, en Union Soviétique, développa une théorie purement neurophysiologique de l'hypnose, et c'est ainsi que la problématique subsista dans les recherches en psycho-physiologie et en neuro-psychiatrie.

Plus tard, et nous terminerons nos considérations historiques là-dessus (Hall⁴), des chercheurs, tels Kubie et Margolin, réintroduisent l'hypnose dans leurs recherches psycho-physiologiques. Gill et Brenman s'intéressent aux problèmes de la régression et de l'organisation des diverses couches structurelles du moi, dans leur questionnement sur l'hypnose et la suggestion. Enfin, des chercheurs tels Sarbin et Barber interrogent les dimensions socio-culturelles de l'hypnose, mettant de l'avant des théories fondées sur le jeu de rôle et l'imitation.

II. Définition

À la lumière de cette évolution très controversée de la connaissance et de la pratique de l'hypnose, nous pouvons imaginer facilement que les définitions proposées de l'hypnose sont multiples et parfois contradictoires. Des auteurs tels Charcot⁶, Binet et Féré⁷, Janet⁸ ont défini l'hypnose comme une manifestation pathologique, un symptôme de l'hystérie. D'autres, tels Bennett⁹, Wolberg¹⁰, Sidis¹¹, Heidenhain¹², McDougall¹³, Eysenck¹⁴ ont défini l'hypnose comme une manifestation neurophysiologique due à des modifications physiques du cortex et des régions voisines, assimilant l'hypnose humaine à l'hypnose animale. Schneck¹⁵ a défini l'hypnose comme un état d'immobilisation assimilable à la catalepsie. Une école relativement glorieuse et à laquelle appartiennent des auteurs tels Pavlov¹⁶, Hudgins¹⁷, Menzies²², Bechterew¹⁹, Welch²⁰, Corn-Becker, Welchet, Fisichelli²¹, Platonew¹⁸, ont introduit la réflexologie dans le domaine de l'hypnose et assimilent l'hypnose à un réflexe conditionné, suggéré soit à l'état de veille, soit en situation de sommeil hypnotique, par certaines méthodes dont l'utilisation du mot. Tribulaires de la théorie de conditionnement, des auteurs tels Kubie et Margolin²³, d'une part, Young²⁴ et Eysenck¹⁴, d'autre part, ont défini l'hypnose comme la création d'une large zone d'inhibition assimilable au sommeil à l'intérieur de laquelle un foyer d'excitation est préservé, et où l'action idéo-motrice est induite par suggestions. Des auteurs déjà cités, dont Janet⁸ et Sitis¹¹, et d'autres, Prince²⁵ et Biernett²⁶, ont, à la lumière des diverses théories du conditionnement, défini l'hypnose comme un état de

dissociation ou plutôt comme un effet de production d'un inconscient dissocié et secondaire, d'où toute motivation est exclue au profit de certains réflexes induits et dissociés du conscient. Nous savons que des chercheurs, dont Ferenczi²⁷, Jones²⁸, Freud²⁹, Schilder et Kauder³⁰, Speyer et Stokvis³¹, et Lorand³², ont décrit l'hypnose comme une forme de transfert, assimilant la relation hypnotiseur-hypnotisé à la relation parent-enfant où, libido et comportements morbides se manifestent librement dans l'interaction induite par l'hypnotiseur. McDougall¹³, a défini l'hypnose comme la manifestation d'un instinct de soumission. Wolbert¹⁰, a élargi les définitions psychologiques citées plus haut, définissant l'hypnose comme une manifestation psychosomatique liée à l'extension d'une inhibition dans les centres les plus élevés du cortex, associée à un processus provoqué de transfert. Enfin, d'autres chercheurs, adoptant un point de vue psycho-social, ont défini l'hypnose comme un effort dirigé vers un but. Citons White³³, pour qui l'état hypnotique constitue la matérialisation (la réalisation) de certains motifs inconnus du sujet de se comporter en hypnotisé, c'est-à-dire de se soumettre aux ordres de désirs d'un sujet "prestigieux". Sarbin³⁴, pour sa part, a proposé une définition de l'hypnose comme un comportement général psycho-logico-social induit dont le succès dépend de la motivation du sujet, de son aptitude à jouer un rôle et de sa perception du rôle à jouer.

En guise de synthèse des diverses définitions rapportées plus haut, mentionnons la définition proposée par André Weitzenhoffer³⁵: un type spécial d'état de transe, caractérisé habituellement par l'hypersuggestibilité, qui est induite chez un individu (le sujet) par certaines actions d'un autre individu (l'hypnotiseur) et durant laquelle l'hypnotiseur exerce présumément un contrôle sur le comportement du sujet (incluant ses expériences) à travers le médium de la suggestion''. Cette définition rejoint celles de Hull³⁶ et de Wells³⁷, pour qui l'hypnose constitue un état d'hypersuggestibilité pouvant être produit à l'état de veille.

III. Suggestibilité, hypersuggestibilité, suggestions

La définition d'André Weitzenhoffer³⁵, citée plus haut, propose un certain nombre de concepts qu'il convient d'expliciter brièvement. Dans *General techniques of hypnotism*, Weitzenhoffer³⁸, distingue clairement l'hypnose de la suggestibilité,

définissant l'hypnose comme un état de l'organisme et la suggestibilité comme une capacité (ou une inclinaison) de l'organisme. L'hypnose, ou l'hypnotisme (Weitzenhoffer utilise les deux termes indifféremment) serait donc une technique qui, se fondant sur une tendance intrinsèque du sujet à la suggestibilité (entendue comme une aptitude du sujet à la suggestion), viserait à créer, par des suggestions proposées par un intervenant extérieur, un état d'hypersuggestibilité à l'occasion duquel certaines actions ou comportements sont provoqués. Dans *Hypnose et suggestion* (p. 38ss) Weitzenhoffer³⁹, distingue trois types de suggestibilité, soit la *suggestibilité primaire*, entendue comme une sensibilité aux suggestions directes et de prestige (ceci fait référence au statut conféré à l'hypnotiseur), la *suggestibilité secondaire*, entendue comme une sensibilité aux suggestions indirectes et de non-prestige et, enfin, la *suggestibilité tertiaire* comprise comme une forme intermédiaire synthétique impliquant la primaire et la secondaire. Weitzenhoffer ajoute que la suggestibilité d'un sujet est mesurable en fonction de la vitesse de la réaction, de l'intensité de cette réaction et, enfin, du degré d'accord entre la suggestion et la réponse. Dépendamment du degré de suggestibilité manifesté par le sujet, Weitzenhoffer distingue cinq catégories au degrés de transe hypnotique (p. 65ss):

- 1° – l'absence complète de transe, n'impliquant aucune réponse à la suggestion;
- 2° – la transe hypnoïdale, reconnaissable à un état de relaxation physique complète, à certains battements des paupières et/ou à la fermeture des paupières;
- 3° – la transe légère, reconnaissable à une catalepsie des yeux, parfois des membres, à une certaine raideur et à une anesthésie locale;
- 4° – la transe moyenne qui se manifeste par une amnésie partielle, une anesthésie post-hypnotique, certaines altérations de la personnalité et la possibilité de certaines suggestions post-hypnotiques;
- 5° – la transe profonde, reconnaissable à la possibilité pour le sujet d'ouvrir les yeux sans que l'état de transe ne soit affecté, à la possibilité de certaines suggestions post-hypnotiques bizarres, au somnambulisme complet, à des hallucinations auditives et visuelles ou à une amnésie post-

hypnotique systématisée.

À la lumière de ce qui vient d'être précisé sur la suggestibilité, nous comprenons mieux l'itinéraire parcouru par le sujet soumis à certaines suggestions sur ce continuum menant d'une suggestibilité initiale à des profondeurs hypnotiques variables selon le degré d'hypersuggestibilité manifesté, provoqué, induit. Il semble, d'après Aaron Moss⁴⁰, que 80 pour cent des sujets soient sensibles à la transe profonde. Moss affirme également, mais nous ne discuterons pas de ces faits ici, que si les sujets névrotiques sont très sensibles à la suggestion, les sujets "normaux" manifestent un taux de suggestibilité moindre alors que les sujets psychotiques sont peu ou pas du tout sensibles à la suggestion. White³³, affirme que les personnes dépendantes sont hautement hypnotisables, contrairement à ceux chez qui le besoin d'autonomie est grand. Kubie²³, pour sa part, insiste sur le fait que, dans l'hypnose, le sujet renonce à l'usage des mécanismes innés qui lui servent à se protéger et assurent sa vigilance pour mettre sa personne et son sens de la sécurité entre les mains d'un autre, réel ou imaginaire.

Il nous reste, en terminant, à dire quelques mots sur la suggestion et sur l'induction hypnotique. Weitzenhoffer³⁵ distingue trois types de suggestion: la *suggestion extra-hypnotique*, faite au sujet en état de veille, la *suggestion intra-hypnotique*, faite au sujet alors que celui-ci est déjà en état de transe hypnotique, quelle qu'en soit la profondeur et la *suggestion post-hypnotique*, dont les effets se manifestent après la déshypnotisation. Weitzenhoffer³⁹, dans *Hypnose et Suggestion*, note que les suggestions peuvent être de plusieurs types, verbales ou non-verbales, directes ou indirectes, de prestige ou non, personnelles ou impersonnelles, immédiates ou différées, marginales ou contextuelles, auto suggérées ou suggérées de l'extérieur. Il distingue également quatre méthodes d'induction: la première, *autoritaire*, c'est-à-dire qui met en place une structure relationnelle du type pouvoir vs passivité; la seconde, *classique* où la capacité interne du sujet et les objectifs visés déterminent le type de suggestions proposées; la troisième méthode est dite *standardisée* en ce que les instructions sont standardisées plutôt que spécialement adaptées à chaque sujet; enfin, la quatrième méthode, dite *indirecte*, c'est-à-dire subjective, interactive et coopérative, s'inspire des théories de la communication et des stratégies du changement psychothérapeutique. Milton Erickson⁴¹ est le principal protagoniste de cette approche.

IV. Conclusion: application et mise en garde

Du champ de la psychologie des profondeurs dans lequel l'hypnose avait été reléguée au début du siècle, il semble qu'aujourd'hui, les méthodes et approches hypnotiques refassent surface tant en sciences de la santé qu'en psychologie du comportement. En effet, de nombreux chercheurs, médecins, dentistes, psychothérapeutes, réintègrent l'hypnose dans leur pratique, soit comme méthode de relaxation, comme méthode de réduction de la douleur, comme alternative (ou complément) à l'utilisation de drogues chimiques en anesthésie, comme méthode de renforcement dans certains efforts menés conjointement par les psychothérapeutes et leurs clients visant à la dissolution de comportements non-désirés et/ou "pathologiques" (ceci va de certaines mauvaises habitudes buccales telles le bruxisme et les tensions myo-fasciales, jusqu'aux efforts pour maigrir ou cesser de fumer). L'hypnose est utilisée par certains dentistes pour diminuer la peur, calmer la douleur, réduire les écoulements sanguins, prévenir l'hypersalivation, etc. . . Le plus souvent, les méthodes d'hypnose se conjuguent aux méthodes curatives traditionnelles (drogues, anesthésie, interventions chirurgicales) dans le but d'en faciliter la menée. Des groupes de recherche existent, des associations de professionnels se forment, des ateliers sont organisés dans le but de faire connaître les résultats obtenus et de favoriser la poursuite de la recherche et de l'expérimentation. Toutefois, dans un ouvrage intitulé *General techniques of Hypnotism*, Weitzenhoffer³⁸ exprime un certain nombre de mises en garde, affirmant que des dangers liés à une mauvaise utilisation de l'approche hypnotique existent, depuis les troubles émotionnels mineurs jusqu'à des convulsions et des attaques d'apoplexie (p. 4). Weitzenhoffer note également que certains malaises post-hypnotiques sont prévisibles tels que des maux de tête, des vertiges, des nausées, des dépressions, des somnolences ainsi que de possibles épisodes névrotiques et/ou psychotiques apparaissant immédiatement après la déshypnotisation ou, dans certains cas, beaucoup plus tard. Weitzenhoffer met également en garde le praticien contre certains abus liés à la position de force, de pouvoir, qu'occupe l'hypnotiseur, rappelant que, de ce fait, de sérieuses et lourdes responsabilités lui incombent. Qu'il suffise, à ce sujet, de signaler que, compte tenu de la grande autorité dont jouit le praticien en hypnose, de la confiance que lui accorde

le patient, et de la vulnérabilité dans laquelle le patient consent à se tenir, il lui est possible d'altérer la structure mentale et psychologique d'un individu et que, de ce fait, la plus grande prudence, la plus complète attention et la plus profonde lucidité sont requises. De plus, et le présent article a longuement insisté sur ces points, les dimensions transférentielles, régressives et contre-transférentielles caractérisant le rapport hypnotiseur-patient imposent au praticien la plus authentique empathie. Δ

Adresse: Dr. Maurice Bourassa
Professeur agrégé
Département de Santé Buccale
Faculté de Médecine Dentaire
Université de Montréal
Montréal, P. Qué. H3C 3J7

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Applications are invited for a full-time, tenure-stream academic position in the Division of Orthodontics, Department of Stomatology. The position will be effective July 1, 1990. Applicants should have undergraduate, graduate and continuing education teaching experience as well as a demonstrated evidence of individual or collaborative applied research. Applicants should be eligible for licensure in the province of Alberta and have demonstrated proficiency in clinical orthodontics. Rank and salary are commensurate with the education and experience of an Assistant Professor (\$34,970 - \$51,434) or Associate Professor (\$43,590 - \$65,718). Intramural private practice facilities are available. In accordance with Canadian Immigration requirements, this advertisement is directed at Canadian citizens and permanent residents.

Send application including a curriculum vitae and the names of three references, no later than February 28, 1990 to:

**Dr. C.G. Baker, Chairman
Department of Stomatology
University of Alberta
Edmonton, Alberta T6G 2N8**

The University of Alberta is committed to the principle of equity in employment.



**University of Alberta
Edmonton**

Assistant/Associate Professor Faculty of Dentistry Department of Stomatology

Applications are invited for a full-time, tenure-stream academic position in the Division of Pediatric Dentistry, Department of Stomatology. The position will be effective July 1, 1990. General activities include teaching in pre-clinical and clinical pre-doctoral courses and involvement in the University Hospital program. The position also requires a demonstrated interest and pursuit of scholarly and research activity. Intramural private practice facilities are available. Applicants should be eligible for licensure in Dentistry in the Province of Alberta, have specialty qualifications in Pediatric Dentistry and an M.Sc., M.Sc.D. or Ph.D. would be desirable. Rank and salary are commensurate with the education and experience of an Assistant Professor (\$34,970 - \$51,434) or Associate Professor (\$43,590 - \$65,718).

Please send applications (including a curriculum vitae and the names of three referees) by March 31, 1990 to:

**Dr. C.G. Baker, Chairman
Department of Stomatology
University of Alberta
Edmonton, Alberta T6G 2N8**

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**Mr. Grant Roberge,
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Vancouver General Hospital.**



**Vancouver General Hospital
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Announcements

February/Février 1990

February 1-3: Miami Winter Meeting For more information, contact: East Coast District Dental Society, 420 S Dixie Hwy, 2-E, Coral Gables, FL 33146, USA. (305) 667-3647.

February 2-9: Alpha Omega International 6th Annual Winter Seminar in Lake Tahoe, Nevada. Contact: Alpha Omega Fraternity, 2016 Bathurst St, Toronto, Ont M5P 3L1.

February 10: XI PSI PHI Founder's Day Celebration Day meeting and evening formal at the Royal York, Toronto. Contact: Dr. John Wiles, 4190 Finch Ave E, Suite 407, Scarborough, Ont. M1S 4T7. Tel: (416) 293-3336.

February 10-11: 33rd Annual Meeting of the Midwest Society of Periodontology in Chicago. For additional information and preregistration forms, contact: Midwest Society of Periodontology, Suite 212, 1775, Glenview Rd, IL 60025, USA. Tel: (708) 724-6396.

February 11-14: 125th Midwinter Meeting of the Chicago Dental Society. Contact: Chicago Dental Society, 401 N Michigan Ave, Chicago, IL 60611, USA.

February 18-22: Annual Scientific Convention of the Dental Association of Trinidad and Tobago. Contact: The Honourary Secretary, 115 Abercromby St, Port-of-Spain, Trinidad and Tobago.

February 23-27: 26th National Convention of the Jamaica Dental Association. Contact: Dr. Susan Lawrence-Beckford, Chairperson, Convention Committee 1990, Jamaica Dental Association, PO Box 19, Kingston 5, Jamaica West Indies.

February 24-March 3: Virgin Islands Dental Association Convention in St. Thomas. For convention pre-registration, travel and accommodation at group rates, please contact: Dr. Bob Brandon at (519) 657-3368.

March/Mars 1990

March 4-7: 67th Annual Session of the American Association of Dental Schools in Cincinnati. For information, contact: American Association of Dental Schools, 1625 Massachusetts Ave NW, Washington, DC 20036, USA. Tel: (202) 667-9433.

March 7-11: International Association for Dental Research in Cincinnati, Ohio. Contact: Ms. Judith A. Gauchel, Scientific Program/Meeting Mgr, 1111-14th St NW, Suite 1000, Washington, DC 20005 USA. Tel: (202) 898-1050.

March 8-9: The 9th Jordanian Dental Congress in Amman. Contact: Dr. Irfan Sultan, Chairman, Scientific Committee, PO Box 1326, Amman, Jordan.

March 9-11: National Conference for the AIDS Caregiver in Canada in Ottawa. For information and registration materials, please contact: Bruce Mills, Conference Facilitator, 1589 St Bernard St, Gloucester, Ont K1T 3H8.

March 14-16: The 4th World Dental Congress of the Egyptian Clinical Dental Society in Cairo. Contact: Prof. Avd Elahdi Nasif Selim, College of Dentistry, Cairo University, Cairo, Egypt.

March 14-17: Annual Western Canada Dental Bonspiel in Victoria, BC. Information available from: Dr. Rennie Bradley, #305-1830 Oak Bay Ave, Victoria, BC V2R 6R2.

March 16-18: National Conference for the AIDS Caregiver in Canada in Calgary. For information and registration materials, please contact: Bruce Mills, Conference Facilitator, 1589 St Bernard St, Gloucester, Ont K1T 3H8.

March 24-31: 25th International Alpine Dental Conference in Courchevel, France. Contact: LW Bryer, 24 Cadogan Square, London, SW1X 0JP, England.

March 26-30: Hawaiian Symposium on Endodontics & Periodontics sponsored by the Alberta Academy of General Dentistry and the Edmonton Multidisciplinary Dental Study Club. Contact: Dr. Eugene Dalla Lana, 206-1305-11 Avenue SW, Calgary, AB T3C 3P6 or tel: (403) 244-4867.

March 28-30: Big Apple New York Dental Meeting. Contact Dr. Leslie Zucker, 3201 Grand Concourse, Bronx NY 10468, USA.

March 28-31: Annual Dental Meeting of the Finnish Dental Society in Finland. Contact: Taru Ohtola, Training Mgr, Committee for Continuing Education, Akavatalo, Rautatielaisenkatu 6 SF-00520 Helsinki, Finland.

March 29-31: 56th Annual Scientific Meeting of the Danish Dental Association and the Scandinavian Dental Fair SCANDEFA 90 in Denmark. Contact: Danish Dental Association, Committee for Postgraduate Education, 17 Ameliegade, Postbox 143, DK-1004, Copenhagen K, Denmark.

March 31-April 6: Annual Meeting of the Canadian Association of Oral and Maxillofacial Surgeons in Whistler, BC. ORAL IMPLANTS - Trouble shooting for successful attached prosthesis. Contact: Dr. Mike Kaburda, 208-600 Royal Ave, New Westminster, BC V3M 1J3.

April/Avril 1990

April 1-6: VIth World Congress on Pain in Adelaide, Australia. For information: International Association for the Study of Pain, 909 NE 43rd St, Suite 306, Seattle, WA 98105-6020 USA. (206) 547-6409.

April 22-27: 2nd International Dental Congress sponsored by Dental Volunteers for Israel. For information, contact: Aufgang Travel, 3528 Bathurst St, Toronto, Ont M6A 206. Phone (416) 789-7117.

April 25-29: American Association of Endodontists. For more information, contact: Ms. Irma S. Kudo, 211 E Chicago Ave, Suite 1501, Chicago, IL 60611, USA.

May/Mai 1990

May 3-5: ODA Annual Spring Meeting to be held at the Metro Toronto Convention Centre is looking for clinicians. All members of the dental team are invited to participate and share their expertise. For an application form, please contact: Diana Thorneycroft, ODA, 234 St. George St, Toronto, ONT M5R 2P1.

May 4-6: British Dental Surgery Assistants Jubilee Conference in Solihull. For information, contact: DSA House, 29 London St, Fleetwood FY7 6JY, England. Tel: 039-17-78631.

May 16-19: International Dental Congress of the British Dental Association at Barbican Centre in London. Contact: British Dental Association, 64 Wimpole St, London W1M 8A1, England or tel 01 935 0875.

May 16-19: 3rd North Sea Conference on Periodontology in Maastricht, The Netherlands sponsored by the British, Dutch and Scandinavian Societies of Periodontology. For more information, contact: Dutch Society of Periodontology, PO Box 24, 9649 ZG Muntendam, The Netherlands.

May 17-19: Congrès de la Société Suisse d'Odontostomatologie SSO in Montreux, Switzerland. Contact: D' Pierre Spahn, 51 av du Casino, CH-1820 Montreux, Switzerland.

May 20-24: Les Journées dentaires du Québec in Montréal. Contact: Chantal Bally, 625 boul René-Levesque ouest, Montréal, Qué H3J 1Y2.

May 28-31: The Impact of Lasers on Dental Science in Paris, France. Contact: Lasers 1990 Scientific Secretariat, Faculté de Chirurgie dentaire, 1 rue M. Arnoux, F-92120 Montrouge, France.

June/Juin 1990

June 2-4: XI^{mes} Journées françaises de Parodontologie in Cannes, France. Contact: Dr. Catherine Mattout, 21 rue Sylvabelle, 13006 Marseille, France.

June 10-13: Alberta Dental Association Convention in Kananaskis. "Start the 90's with a Kananaskis High". For registration, contact: Dr. R.T. Huff, 131 Woodvalley Dr SW, Calgary, ALTA T2W 5Y2.

June 14-15: Fundamentals of Orofacial Myology with Marvin L. Hanson in Ottawa. Contact: Barbara Okun, Dept of Speech and Language Disorders, Ottawa Civic Hospital, 1053 Carling Ave, Ottawa, Ont K1Y 4E9. Tel: (613) 761-4722.

June 19-22: 96th Annual Meeting of the American Dental Society of Europe in St. Andrews, Scotland.

Contact: Dr. Clive Debenham, American Dental Society of Europe, 1 Harley St, London W1N 1DA, England.

June 25-29: 81st Annual Conference of the Canadian Public Health Association in Toronto. Contact: CPHA, 1565 Carling Ave, Suite 400, Ottawa, Ont K1Z 8R1. Tel: (613) 725-3769.

June 28-30: Florida National Dental Congress. For more information, contact: Betty Waggener, Director, Florida National Dental Congress, 3021 Swann Ave, Tampa, FL 33609. Tel: (813) 877-7597.

July/Juillet 1990

July 2-5: 5th Biennial Congress of the International Association of Oral Pathologists in Tokyo, Japan. Contact: Dr. Tetsuo Ishiki, Niigata University, 2 Gakko-Cho, Niigata #951, Japan.

July 6-7: International College of Dentists, European Section in London. Contact: Dr. B.D. Glynn, 35 Devonshire Pl, London, W1N 1PE, England.

July 11-14: 37th Annual Congress of the European Organization for Caries Research in Ljubljana, Yugoslavia. For details, contact: Dr. V. Vrbic, University Klicny Ctr. Ljubljana, Mrvatski TRG 6, Y-61000, Ljubljana, Yugoslavia.

August/Août 1990

August: Annual Congress of International Association of Dental Students in Puerto Rico. Contact: The Secretary, International Association of Dental Students, c/o Fédération dentaire internationale, 64 Wimpole St, London, W1M 8AL, England.

August 24-28: 15th Biennial Conference of the New Zealand Dental Association in Dunedin, New Zealand. For information, contact: Conference Secretary, PO Box 647, Dunedin, New Zealand.

August 25-28: Congress of the Association of Dental Education in Europe in Budapest, Hungary. For details, contact: Prof. Jolan Banoczy, Mikszath K ter 5, H-1088 Budapest, Hungary.

September/Septembre 1990

September: Annual Conference of the European Prosthodontic Association/Dutch Society of Prosthetic Dentistry in the Netherlands. Contact: Prof H. de Koomen, ACTA, Postbus 7161, 1007 MC Amsterdam, The Netherlands.

September 2-6: 10th Congress of the International Association of Dentistry for the Handicapped in Nice. Contact: Prof J.R. Jasmin, Université de Nice, UFR Odontologie, Faculté de Chirurgie dentaire, av Joseph Vallot, Parc Valrose, 06034 Nice, France.

September 5-7: 7th Biennial Congress of the International Academy of Gnathology (Asian Section) in Singapore. Contact: The Secretariat, IAG-7th Annual Congress, Communication International Assoc Pte Ltd, 450 Alexandra Rd, #10-00 Inchange House, Singapore 0511

September 8-14: 78th Annual World Dental Congress in Singapore. Contact: Fédération dentaire internationale, 64 Wimpole St, London W1M 8AL, England.

September 10-14: 10th Congress of the European Association for Cranio-Maxillo-facial Surgery in Brussels. Contact: Mrs. H. van Leemputten, rue Joseph Stallaert 28, B-1180 Brussels, Belgium.

September 12-15: dentchnica 90 and the 10th International Congress of Dental Technicians in Cologne, Germany. For information, write: Verband Deutscher Zahntechniker-Innugen, Ilkenhansstraße 6, D-6000 Frankfurt 50, West Germany.

September 17-20: 4th Meeting of International Academy of Periodontology in Istanbul. Contact: Mr. M. Mida, University of Bristol, Dental School and Hospital, Lower Maudlin St, Bristol BS1 2LY, England.

September 27-30: 108th Annual Session of the American Dental Trade Association in Hilton Head, South Carolina. Contact: Mr. Nikolaj Petrovic, American Dental Trade Association, 4222 King St, Alexandria, VA 22302, USA.



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ONTARIO: Just east of Toronto — long-established family practice for sale. Owner contemplating retirement. Approx. 1200 sq ft in professional bldg, 2 ops completely equipped — two more plumbed/wired. Please contact CDA Box 2466.

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BRITISH COLUMBIA—Nanaimo: Associate required. Excellent opportunity in busy and growing practice in mall setting. Wonderful climate and recreational facilities. Close to Vancouver and Victoria. Reply: Dr. Patricia Crosson — days (604) 754-1949, evenings (604) 468-9892.

BRITISH COLUMBIA—Williams Lake: Full-time Associate Wanted. Busy, well-equipped family practice with good support staff including hygienists. Phone — Alistair Menzies (O) (604) 398-7161 or (H) 392-2615 collect.

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Opportunities Available

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ONTARIO—Ottawa: Locum required for maternity leave March 1 – July 1, 1990. Please contact Dr. J. Alan Bridges at (613) 225-4208.

ONTARIO—North Toronto: Position available immediately for a paediatric dentist with Ontario certification in a modern, well-established private practice. Full range of dental care provided from preventive to orthodontic services; well care and special needs (mentally and physically compromised) children and adolescents. Associateship with future prospects for partnership or cost-sharing arrangement. Please reply to CDA Box 2426.

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G.V. Who?

The American Academy of the History of Dentistry is the largest organization devoted to the history of our profession in the world. Among other accomplishments, this academy supports an annual competition (Bremner Essay Award) open to all students in dental schools in the United States and CANADA. To my knowledge no Canadian student has ever won this prize. In fact, I have yet to find anyone who has even entertained the idea of entering the competition.

The lack of interest exhibited by most dentists in their historical roots is appalling. What little information is disseminated through formal lecture series is either never absorbed or quickly forgotten. A profession unschooled in its origins, is more vulnerable to the commercial erosion that society invariably exerts on the unsuspecting.

In the rush to guarantee a proper foundation in cavity preparation and denture fabrication (two mainstays of our profession that will soon become historical curiosities themselves!), our Dental Faculties have failed to cement one of the cornerstones of any profession's survival. A recent informal review by this writer of some of the deans in Canada provided little reassurance. They all noted that while the time allotment was generous in light of other curriculum demands, students manifested little motivation in attending history lectures. To a man, (Dr. Boyd please excuse my generic reference) they professed a desire to make this element of their programs more available and imaginative. Yet, at least one faculty, has chosen to warehouse most of its excellent dental museum when expansion forced internal changes. None of the schools offers incentive to the potential dental historian.

When the private insurance corporation, Associated Medical Services, Inc, was legislated out of business as an insurance company by "progressive" social health legislation in Ontario, the company chose to establish the Hannah Institute for the History of Medicine. Funds from the Institute are directed towards the ongoing support of a chair in the history of medicine at each of the five medical schools in Ontario. In all likelihood, comparable resources are out there, and with proper direction could be equally responsive to dentistry's needs. It's time for the profession to parade her past. It may be the key to survival in the future.

*Jack H. Gryfe, DDS,
Weston, Ontario*

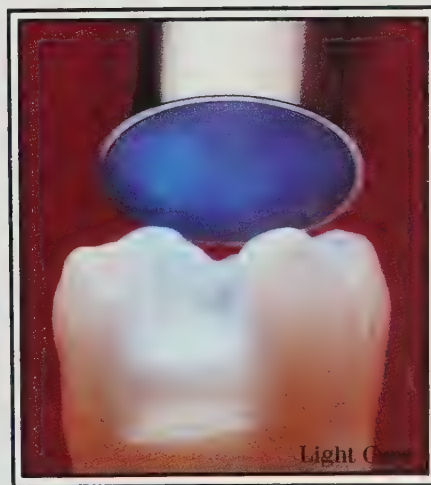


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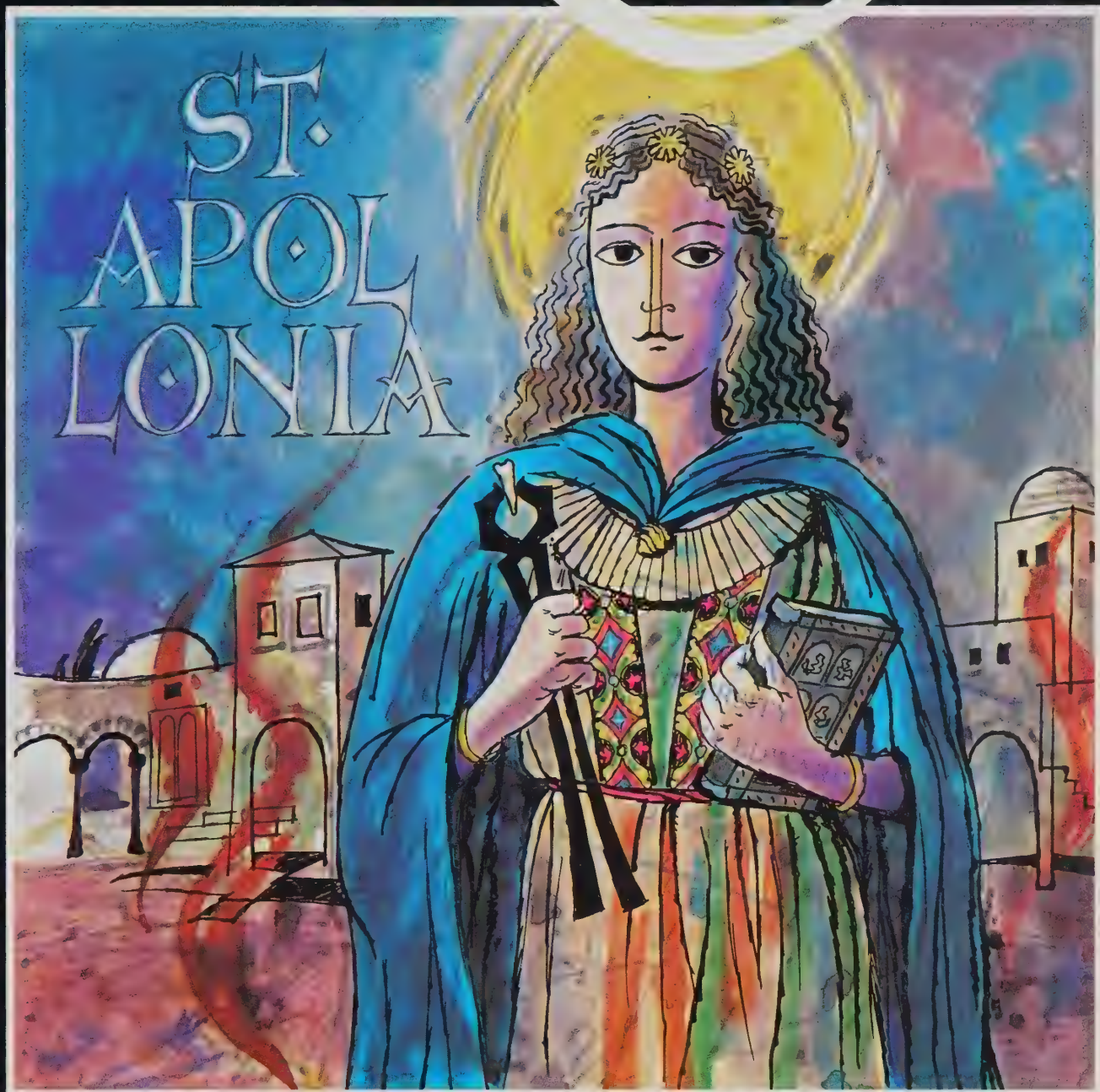
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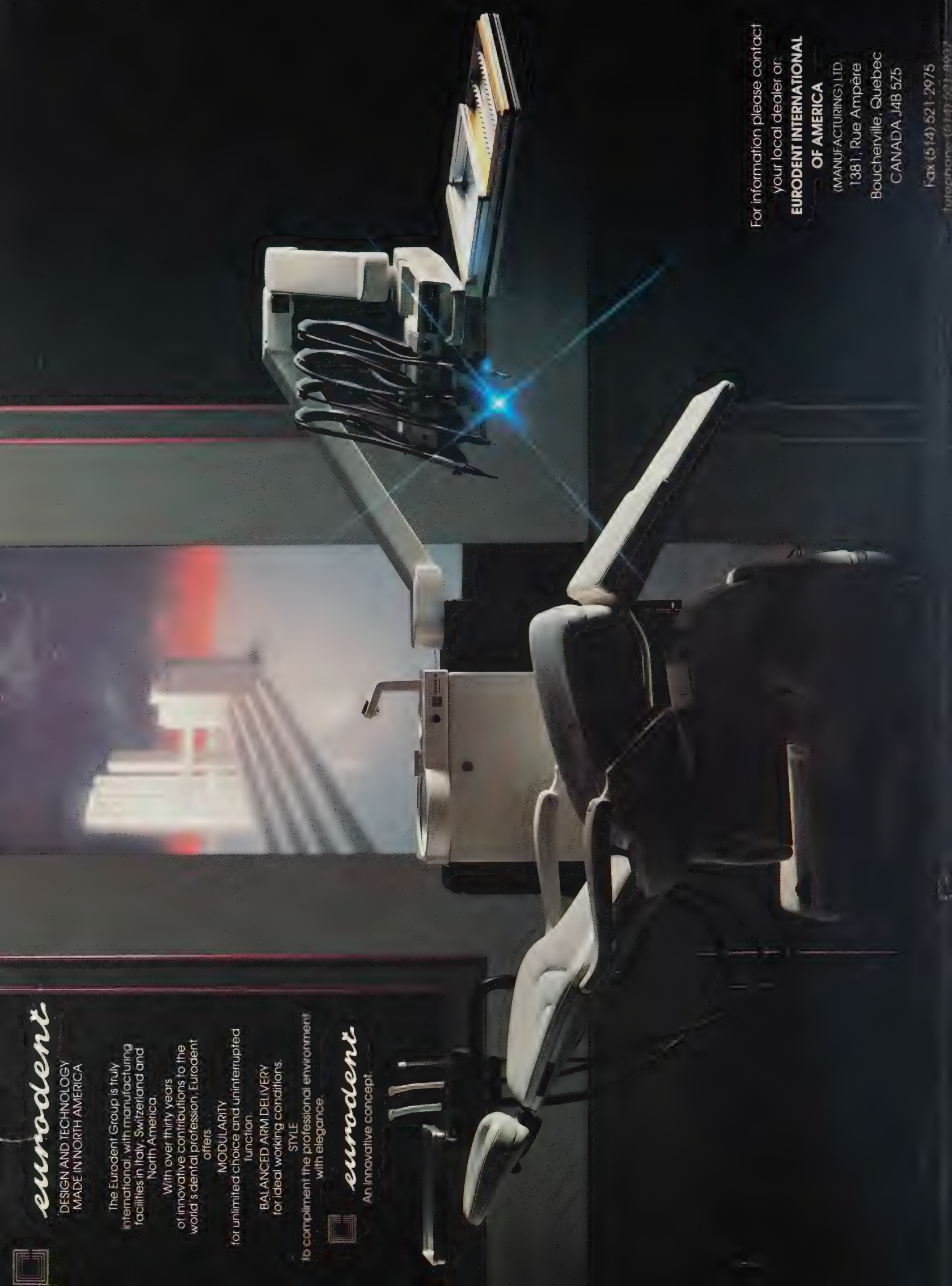
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The Canadian Dental Association serves the dental profession — and through the profession the Canadian public — as the authoritative national voice and resource for dentists.

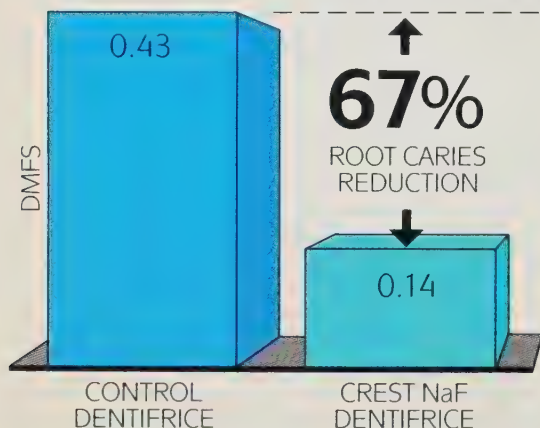
In cooperation with the provincial dental associations and affiliated organizations, CDA offers services, in both official languages, intended to support and advise all areas of dentistry and to represent, protect, promote and develop the interests of the dentist as ethical practitioner, professional, educator, student, researcher, business person, citizen and individual.

CDA recognizes a particular responsibility to contribute to the development of national positions and standards related to dentistry, dental education, dental research, dental equipment, dental materials and dental personnel.

CDA is dedicated to the principle that all Canadians should have the best oral health care it is possible to provide; it actively seeks input from and dialogue with governments, consumers and all those interested in dentistry to enable it to serve more effectively both its members and the Canadian public.



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Canadian Dental Association
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Our cover depicts St. Apollonia, the patron saint of Dentistry. Her feast day is February 9. (See story on Page 83)

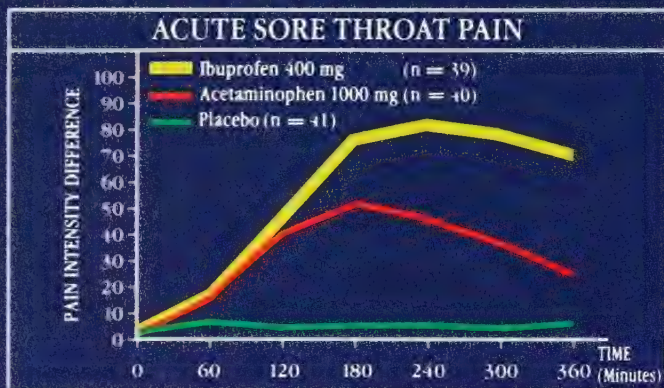
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"Continuing Education — a Legal Requirement?"

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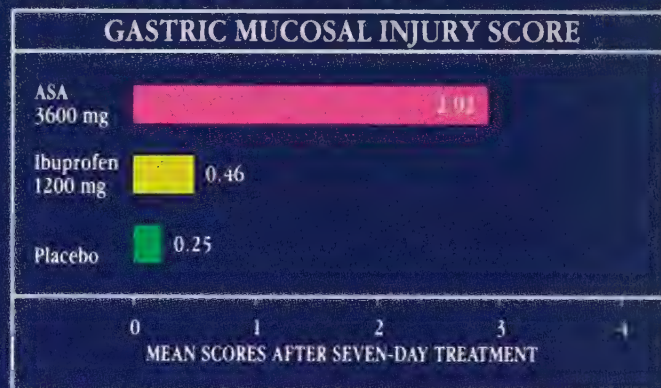


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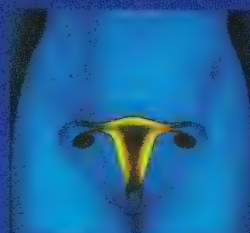
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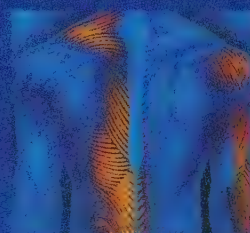
A new standard for OTC analgesia.



Headache



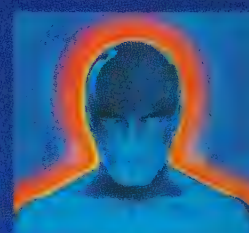
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It's Your Journal

A wise man once remarked the only difference between animals and humans was language, and the only difference between the educated and the ignorant was the printed word. When Gutenberg developed the press in the 1450s the knowledge of civilization was suddenly available to all who could read.

Despite the meteoric increase in electronic communication, the printed word still forms the foundation of knowledge for the professional. The first dental journal in the world was printed in 1839. The Journal of the Canadian Dental Association was founded in 1935 and is just one of more than 1,000 dental journals in the world today. But the JCDA is special — it's Yours!

What is the difference between a "good" and "bad" journal? A fair question but not simple to answer. A journal should first and foremost provide informative reading not obtainable elsewhere. If it is an association journal, it must also be the association's "voice". It must contribute to the growth, the progress and the unification of its owner-organization.

This is why Your Journal is the only national dental journal reporting regularly on all aspects of dentistry to all Canadian dentists. Within its pages will be found provincial and federal government activities affecting the nation's oral health; dental educational efforts influencing the dentists of tomorrow and information about the various societies and academies. Plus of course, CDA's constant endeavors to fulfil the needs of organized dentistry, today and tomorrow.

Your Journal has a difficult time attempting to be "all things to all people" but that is its mandate. There is just no other way dentists from coast to coast can receive current vital information on a regular basis. Unlike a commercial or entrepreneurial publication whose mandate is a bottom line of "profit", the CDA Journal cannot afford the luxury of printing just what readers like; it must also publish what readers need.

Your Journal carries reviews of books which may be of interest to you; you wish to keep up-to-date. But you may not be too interested in the obituaries. The opposite might be true with the dentist down the hall. He's long past retirement age and is concerned about whether any classmates of 46 years ago are living or dead.

The "pure" scientific article may be just what the academic wants to read because it is relevant to his/her research. But you may only want to read what particular device or technique can help you in your office today. A national association journal cannot afford to be discriminatory, just publishing what is popular or profitable.

The same dilemma is posed with advertising dollars (money which is really yours!). The Canadian Dental Association has frequently stated its position on snacking. If an advertising agency offers Your Journal \$5,000 for a two-page advertisement which suggests snacking is not harmful, should Your Journal accept? As a matter of principle it has to say "No!"

Similar situations arise with scientific articles. What happens if a well documented article is submitted which states the claims of a frequently advertised product cannot be substantiated. Should Your Journal, by printing the advertisement, risk raising the ire of the product supplier and lose considerable advertising revenue?

Or what should be done when a scientific paper, researched by reputable investigators, claims a product advertised in Your Journal poses the danger of a serious allergic reaction? Particularly if the supplier of the product spends \$50,000 a year enticing dentists to buy the product! Should the editor quietly reject the article as being "unsuitable"?

In such examples, a specific stand has been taken. Your Journal refuses to be influenced by pieces of silver. We believe readers would rather risk losing money than integrity. Incidentally, the Journal costs each member less than \$10 per year — pretty economical reading for 12 issues!

Your Journal continues to strive to be the ideal editorial product; one that combines authority and utility from the perspective of the target readers. But who ever said the task was easy?

*P. Ralph Crawford, BA, DMD,
Editor: Journal of the Canadian Dental Association*

Higher and Deeper

I have read that without the action of putrifying bacteria, the world would be entirely covered with human, animal, plant and insect carcasses, to a depth of several feet, in an incredibly short period of time. Obviously, life could not continue in such an environment and we should be thankful that the unseen bacteria continue the processes of rot and decay. There are other threats to the environment, however, with equally disastrous consequences, if action is not taken. Some waste products do not rot or decay and some are poisonous or infectious. The earth's ozone layer, its atmosphere and even its soil and water are all under attack, at this very moment in time.

Recent Canadian public opinion polls identify the threats to our environment as the number one issue of concern to the general public. When the public gets concerned, government gets going and municipal, provincial and federal levels of government are spurred to regulate hazards in the workplace, to reduce pollution and to control the disposal of poisonous and infectious wastes. Dentists, as members of a caring profession concerned with human well-being, should not only be taking action but demonstrating leadership in this regard. And CDA is doing so.

Dr. Jack Gryfe, Chairman of the CDA Committee on Community and Institutional Dentistry, has written to governments at all levels across Canada to collect information on how environmental hazards are being defined and what steps are being taken to contain them through regulation. One of his concerns, which I share, is that government regulations and legislation have the potential to create bureaucratic nightmares when simple, practical measures could solve basic problems. His goal is to have the CDA Committee on Community and Institutional Dentistry produce practical guidelines on waste disposal for the dental profession in time for the Interim Meeting of the CDA Board of Governors.

Regulations governing waste material disposal currently fall under provincial jurisdiction and in many cases municipal bylaws supplement these regulations. Waste from the average dental office is generally considered to include some hazardous elements, such as blood from patients with Hepatitis B or patients who are HIV positive. Currently, such wastes are being bagged and sterilized in the office sterilizer. Then they are disposed of in the normal fashion. Such an approach is only practical, however, if protocols are in place to isolate the waste from patients with known or suspected communicable diseases and if quantities are small. There is growing scepticism, as well, about the ability of any practice to identify every patient with blood-borne pathogens.

When larger quantities are involved or if all waste products contaminated by blood or other dental wastes are considered hazardous, dentists may need to contract with waste disposal companies to pack the waste in special containers and remove it for disposal by incineration. Needless to say, the cost of this type of approach will be considerable.

The Canadian Standards Association, in an earlier report *Handling of Waste Materials Within Health Care Facilities* (June 1988) took a practical approach which recognized that contaminated blood did not present a major hazard unless it was accompanied by a means of introducing the contaminated blood into the human body (through for example, puncture of the skin by a contaminated sharp). The CSA document, accordingly suggests that dental offices should observe proper aseptic technique and handle sharps in containers which meet the following criteria:

- sturdy enough to resist puncture under usage conditions and to the point of disposal;
- clearly identified as containing sharps (e.g. by the use of the word SHARPS or by a symbol recognized by the facility);
- have lid(s) capable of being tightly secured; and
- have the cytotoxic hazard symbol displayed clearly and visibly if the container includes cytotoxic wastes.

The CSA has been continuing its study of medical wastes under a special contract with Environment Canada and a preliminary report is expected by the time this editorial appears. The medical and dental professions will be given an opportunity to review the report. It may become the basis for federal legislation under the Ministry of the Environment. CDA's Committee on Community and Institutional Dentistry will review this report as part of the background for the expanded CDA Guidelines it intends to produce. These will be in your hands as quickly as they can be developed and approved.

In the interim, dentists should follow the current practice of maintaining aseptic technique, isolating and sterilizing waste from patients with blood-borne pathogens and also packaging contaminated sharps as suggested in the CSA Guidelines.

Kevin L. Roach, BSc, DDS
President of the Canadian Dental Association

Dr. Norman K. Wood assumes post as Dean, Alberta dental faculty

Dr. Norman K. Wood, until recently a full-time faculty member of Loyola University School of Dentistry in Chicago, is settling into his new office as Dean of the Faculty of Dentistry, University of Alberta.

He succeeds Dr. Gordon W. Thompson.

Dr. Wood who was born and raised in the Smiths Falls area of the Ottawa Valley, in Northeastern Ontario, received his dental degree from the University of Toronto in 1958. He practised general dentistry in Smiths Falls until the fall of 1962, when he left to pursue graduate studies in oral surgery at Northwestern University Dental School in Chicago. After completing a 24-month residency program in that specialty at Cook County Hospital, he earned his MS degree and also a PhD in General and Oral Pathology.

21 years at Loyola

For the next 21 years, he served as a full-time faculty member at Loyola School of Dentistry. During this period he attained the rank of full professor, and chairmanship of the Department of Oral Diagnosis/Oral Pathology/Oral Radiology.

He has been author or editor of four books, three of which are in advanced editions and have been translated into a number of foreign languages. Dr. Wood has written several chapters for other books and has published approximately 35 papers in the professional and scientific literature.

His major research interest has been in the area of induction of hamster cheek pouch carcinomas. Dr. Wood has lectured widely in the United States. He has achieved Diplomate status in the American Board of Oral and Maxillofacial Surgery, the American Academy of Oral Pathology and the American Academy of Oral Medicine. He has maintained a part-time practice in oral surgery and oral medicine.

He has remained active in organized dentistry over the years, particularly in the American Academy of Oral Pathology, where he has served as Director of Education and a member of the Council for several years. Dr. Wood presently serves as President-elect of that Academy.

In Illinois, Dr. Wood maintained an active role in the American Cancer Society



Dr. Norman K. Wood

and has served as chairman of the Oral Cancer Subcommittee for several years.

"Distinguished heritage" — an attraction

When asked why he chose to accept an appointment as Dean of the Faculty of

Dentistry at the University of Alberta, Dr. Wood replied that it was truly a difficult decision. "I have a wife and four daughters, all born and raised in the Chicago area so it was difficult for them to leave friends, relatives and to begin in a different country and school system. However, the distinguished heritage of the oldest school in Western Canada, its fine reputation with its outstanding faculty members and excellent student body, tipped the scales in the decision."

Dr. Wood tells us that he is very pleased to find such a fine balance between excellence in teaching and research with very considerable research funding in place. Another obvious strength of the school is the rich and varied backgrounds of the academic staff. Dr. Wood's goal is to maintain, expand and enhance the excellent teaching and research programs that already exist. He states that the challenge for the immediate future will be to initiate and carry out the changes necessary in the instructional program to prepare dental clinicians to meet the changing needs of the public in today's and tomorrow's world and to do this at a time when government funding for advanced education is in decline. Δ

Dr. Barry Korzen honored by U of Toronto colleagues

Dr. Barry H. Korzen, who recently resigned as Head of the Endodontic Department, Faculty of Dentistry, University of Toronto, was feted by friends and colleagues in November.

In addition to the Endodontic staff, guests included Dr. John Phillips, a past department chairman; Mrs. Betty Conroy, past department secretary; Mrs. Edith Tveit, the present secretary; and Dr. Alvin Krakow, Past Chairman of the Postdoctoral Endodontic Program for Harvard University/Forsyth Dental Centre, of Boston. The tribute was arranged by a committee chaired by Dr. Wayne H. Pulver and Dr. Mitchell Levine served as Master of Ceremonies.

Dr. Korzen, an alumnus of the University of Toronto dental faculty had been teaching prior to his appointment as Head of the Endodontic Department, and accepted that position on July 1, 1978. During his time in this post, he revamped the entire curriculum of the Endodontic Department in both the clinical and didactic areas. For the past three years, Dr. Korzen had also served as Chairman of the Continuing Education Committee for the Faculty of Dentistry, and also, Director of Alumni Affairs.

At the event, Dr. Calvin Torneck, Acting Head of the Endodontic Department, announced "The Dr. Barry H. Korzen Dental Alumnus of the Year Award", which will be presented annually at the University of Toronto Faculty of Dentistry. The Award is being funded through the generosity of the Endodontic Staff and friends. Δ

Dean of Dentistry, Toronto, for 22 eventful years

An important chapter in the history of the profession of Dentistry in Canada has come peacefully to an end with the passing of a great Canadian, Dr. Roy Gilmore Ellis. Dr. Ellis was born in Peterborough, South Australia, on July 10, 1906. He passed away in Toronto on October 21, 1989, at the age of 83.

An enterprising and innovative young boy, Roy Ellis lived with his younger sister Helen and his parents on a prosperous wheat farm in the District of Bundaleer, near the towns of Peterborough and Jamestown, on the south, central coast of Australia, 180 miles from the city of Adelaide.

In 1926, at the age of twenty, Roy Ellis graduated from the dental school in Adelaide and practised with his childhood dentist, Dr. Millhouse, for two years.

DDS in 1928

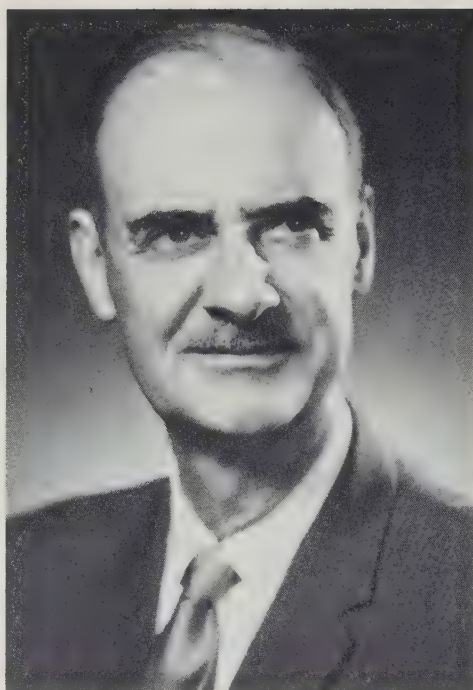
In September 1928, he came to Canada, and he graduated, with his D.D.S., from the University of Toronto one year later. In 1930, he earned his Bachelor of Science in Dentistry and, in 1931, he accepted a full-time appointment in the Prosthetic Department. In 1936, following the appointment of Dr. Arnold Denbow Alfred Mason as Dean, Roy Ellis, recently married to Constance Ferguson, was appointed Director of Clinics. In 1942, he earned his Master of Science in Dentistry. It was at this time that he wrote his book, "The Classification and Treatment of Injuries to the Teeth of Children." With the passage of time the book was published in several languages and it became a classic in Pediatric Dentistry.

On July 1, 1947, Sidney Smith, President of the University of Toronto, announced that Roy G. Ellis was appointed Dean, Faculty of Dentistry, University of Toronto. He would hold this position for the next 22 years . . . until 1969.

Major contributions as Dean

During his term as Dean he made many major contributions to his profession and to dental education but there were two that he was especially proud of:

The establishment of the Division of Dental Research, in 1952, was one of the most significant achievements of the Ellis Era. Three developments occurred at



Dr. Roy Gilmore Ellis

approximately the same time, (1) The establishment of a Division of Dental Research in the National Research Council in Ottawa, (2) The establishment of a Division of Dental Research in the Faculty of Dentistry and (3) The establishment of the Kellogg Foundation Scholarships which provided the research personnel.

The second major achievement of the Ellis Era, and very much related to the new Research Division, was the establishment of a new dental building at 124 Edward Street. And so, after 50 years at 230 College Street, the Faculty of Dentistry moved into its new home, the sixth building, with its magnificent new facilities for both clinical practice and research. Dean Ellis, with his remarkable talents as an administrator and organizer, masterminded the building of the new school and orchestrated the conversion from 230 College Street to 124 Edward Street through a very difficult period.

In 1966, Roy Ellis advocated that the enrolment of graduate and post-graduate students be tripled. In relation to the needs for graduate and post-graduate education, he recommended the building of a new addition of 25,000 square feet to the new school at a cost of one million dollars. Nineteen years later, in 1985, a

new edition was completed at a cost of twenty million dollars and, indeed, the enrolment was approximately tripled.

On July 1, 1967, Roy Ellis advocated major changes in the curriculum of the Faculty of Dentistry to assure that graduates in the years ahead would be adequately prepared for their responsibilities. He then established the Curriculum Review Committee.

Awarded many honors

Roy G. Ellis was a member of many organizations and was an officer and leader in most of them. He received many honors from his colleagues, his universities and his country, including an honorary D.D.Sc. from the University of Adelaide in 1971, an honorary L.L.D. from the University of Toronto, during the Centennial of Dental Education in Canada, in 1975 and the Centennial Medal, on the occasion of the one hundredth anniversary of the Confederation of Canada, in 1967.

For Roy Gilmore Ellis, life was a most rewarding and fulfilling adventure that took him across oceans and across continents, from the virgin wheat fields of rural Australia to the hustle and bustle of Metropolitan Toronto in urban Canada . . . from the solitude of a quiet billabong on his father's farm to the excitement of fishing elusive trout by a remote waterfall in Northern Ontario, and . . . from the hard physical labour of sewing grain bags at a threshing near Jamestown to the challenges and administrative responsibilities that come with being the Dean of the Faculty of Dentistry, University of Toronto . . . the largest and oldest dental school to be established in the second largest country in the world.

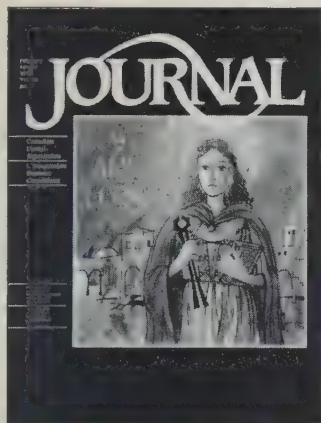
"This I learned from the shadow of a tree which to and fro did'st sway upon the garden wall. Our shadow selves, our influence may fall where'er we n'er can be."

'Shadow' influenced many

It is impossible to calculate the number of lives that were influenced by Roy G. Ellis during the course of his illustrious career. We know that he directly touched the lives of approximately 3,500 young men and women who were his students at

THIS MONTH'S COVER

St. Apollonia — Patroness of Dentistry



The Journal cover this month is an artist's conception depicting one of dentistry's most famous ladies — St. Apollonia. Canonized a Saint in the year 249, February 9th is her feast day.

In the early days of the Roman Empire the Christian Church had considerable immunity but around about the time of Nero the Empire was celebrating a thousand years of glory and power; national pride and patriotic duty were running high. Those who openly spoke against the "glory of Rome" were frowned upon, particularly if promulgations suggested the Emperor was indeed not of divine power.

Legend tells us Apollonia was the daughter of a prominent magistrate living in Alexandria about the year 225. Dionysius in his *Church History*

recounts she was "a virgin of advanced age". Apparently centuries of story telling rejuvenated Apollonia into a beautiful woman of "tender years". Dozens of paintings, icons and woodcuts spread over a 1,500 years depicts a variety of images but invariably showing a pious lady holding a long, pincer-like pair of forceps firmly grasping a tooth.

Apollonia, an outspoken proponent of Christianity, was commanded by the Roman Emperor to recant. Refusing to deny her faith she was cast into prison to undergo the horrors of torture. A popular choice of persuasion of the day was to either (or both!) break the victim's teeth with an iron bar or with crude pincers literally "tear" the teeth from the skull.

In unspeakable agony Apollonia continued her refusal to recognize the Roman gods, even when threatened with burning at the stake. In her torment she pleaded to God that all those suffering from toothache be granted relief from pain in her name.

Sensing neither mercy or relief she leapt onto the pyre of flames, demonstrating forever martyrdom to her faith. △

the Faculty of Dentistry, University of Toronto from 1931 to 1969 . . . a period of 38 years. These students, upon graduation, have become established in institutions and practices throughout Canada and around the world. Many of them have distinguished themselves in research, in education and in the clinical practice of Dentistry. Many have become heads of departments, deans and president of a university. Others have become leaders in other ways. Thus, indirectly, his "shadow self" has fallen on countless others "where'er he n'er can be" . . . through his graduates as they, in turn, cast their shadows in dentistry and in society.

Roy G. Ellis made this great country his home from 1928 to 1989 . . . a period of 61 years. He served as a vital member of our profession for 60 years. He was a driving force in dental education in Canada for over 25 years, and . . . he

was our Dean for 22 years. His dignified and gracious wife, his loving family, his many friends, his admiring colleagues, and . . . we . . . his students are all proud of his accomplishments and are very much aware that something of him will be a part of us . . . forever. △

Jack G. Dale

Did you know?

In 1986, Canadians spent \$28 million on toothbrushes and \$110 million on toothpaste. For the same year, the average family (2.6) spent \$241.00 on toilet products and cosmetics; \$81.00 on hair products and only \$37.00 for oral hygiene products.

Hospital paediatric dentistry chiefs meet in Toronto

A meeting of Hospital Chiefs of Paediatric Dentistry held in Toronto was attended by nine of the 12 Hospital Chiefs. The two day meeting was chaired by Dr. David Kenny of the Hospital for Sick Children in Toronto.

A broad range of discussions were held covering such topics as Canadian Council of Hospital Accreditation, quality assurance and risk management, accreditation, orthodontics and oral surgery in paediatric hospitals, hospital-university relations, clinic management, aids, and research.

Unanimous Consensus Statements accepted were. . . .

- **Consensus Statement:** The minimum standards suggested for a Canadian Dental Association survey team to review a Paediatric Dental program are, early notification of date of survey, the names of the reviewers and their specialties and a minimum of two surveyors. One surveyor should be a Canadian hospital-based paediatric dentist and the second should be a dentist who is thoroughly familiar with hospital dental practice.
- **Consensus Statement:** In a specialist hospital clinic, the primary care dentist responsible for the treatment of each patient should be clearly identified.
- **Consensus Statement:** Training of undergraduate dental students in hospital should be preceded by lectures on the didactic aspects of paediatric medical conditions. In-hospital training of undergraduates should consist of exposure to and observation of children with medical conditions and disabilities rather than dental treatment. Undergraduate rotation to a paediatric hospital should be elected by the student due to the special nature of paediatric practice. The numbers of undergraduates to be accommodated at any time should be determined by the Chief and based upon patient factors, clinic size, location, support staff and other local conditions.
- **Consensus Statement:** The American Dental Association revised Standards for Advanced Programs in General Practice Residency are at considerable variance with Canadian paediatric hospital internship training programs.

(Continued on next page)

The most obvious difference is that in Canada, internships are often specialized in nature whether they are in paediatric or in adult hospitals. Finally, paediatric hospital internships appeal to only a limited number of dental graduates and the management of trauma and paediatric medical conditions make one year stable-staff internships more desirable than rotational internships in the interests of patient care and quality assurance.

- **Consensus Statement:** Externally funded research may be expected of a university hospital dental department when there is a critical mass of funded, dedicated (> 50%) personnel and access to Ph.D. co-investigators. For any original clinical research to be expected, the hospital or university must provide support to the hospital dental department in the form of access to statisticians, artists, publication editors and other specialists.
- Finally, case reports and literature reviews are considered part of the education of interns and postgraduate students and so are considered teaching activities rather than research. They require the least resources. Δ

Meet the CDA Headquarters Staff

JOURNAL PRODUCTION STAFF



This group is involved in the planning management and production of your Journal.

Seated, foreground, is Miss Linda Teteruck, CDA's Director of Communications. Her purvue includes the Journal, the CDA Communiqué and Information Services. Information Services includes media and public relations, pamphlets produced and supplied by the CDA and planning and implementation of the National Dental Health Month Program.

Standing, from the left, are: J. Clarence Metcalfe, Associate Editor; Mrs. Marg. Churchill, Journal Advertising Representative; Dr. P. Ralph Crawford, Journal Editor, and Mrs. Jennifer McClinton, Assistant Editor.

Mr. Metcalfe is involved in the day-to-day production process, including final editing, expediting typesetting, proofreading and layout of the Journal pages. He also writes many news stories and "Briefly" notes.

Ms. Churchill, a member of the Keith Health Care Communications firm, is based in Toronto (where most of the country's major advertising agencies are based). She persuades dental industries and others interested in the dental clientele, to buy advertising space in our Journal. She supplies the film and advertisers' instructions to Jennifer McClinton, in Ottawa.

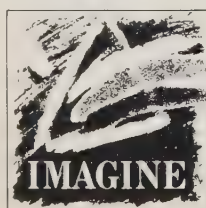
Dr. Crawford, a past-president of the CDA, maintains an office at the CDA headquarters building in Ottawa. He is an ardent researcher and (dental) historian. These activities result in many articles on dental subjects of current and vital interest to the profession. Dr. Crawford writes most of the Journal editorials and particularly enjoys conducting interviews with prominent health professionals and notable individuals within the dental profession. He attends and reports on a variety of dental meetings and events across Canada, and, on occasion, beyond our borders.

Mrs. McClinton attends to a variety of vital production tasks. She is involved in the preparation of advertising pages for the Journal and also in the placement of classified notices. She prepares the lists of upcoming dental events, in Canada, and world-wide. Journal circulation records and verification of the same to circulation bureau auditors, and also Journal correspondence and the provision of reprints of articles to published Journal authors, are also handled from her desk. She assists in proofreading and plays a vital role in the layout of pages for each issue of the Journal. Δ

PHILANTHROPIST.

If more of us
were one,
more of us
would know
what
it meant.

The giving begins with you.



Publishing an Article — CDA Style

J. Clarence Metcalfe and P. Ralph Crawford
Editors

In the publishing process, a potential CDA article, if it were personified, should probably be pitied. In the process it will probably be dismembered; portions surgically cut away, bits and pieces transplanted and its very body often shortened.

If it were personified, there would be as much reason for fear and trepidation as was traditionally attributed to the dental patient in earlier years. The potential story would make every possible effort to avoid the Editor's "Clinic".

Many editors however, like dentists of yester year, can muster empathy for authors. Editors are quite aware that the manuscript comes not from a Hemingway, McLennan or a Shakespeare. The articles that do arrive in the editor's "clinic" aspiring to achieve national and international fame through the pages of the Journal of the Canadian Dental Association, are treated with respect, undivided attention, and tender loving care in the handling thereof.

Refereed articles

If the article is of a scientific nature it is subjected to the referee process. This system assures authors and readers the subject matter has been reviewed by at least two neutral authorities before being published. The reviewers, who always remain anonymous, will often suggest revisions, corrections, additions and deletions before the article appears in print. The process adds respectability and credibility to any publication. Many authors will only submit material to a journal which guarantees such quality.

The scientific article is first read by the JCDA Editor who notes whether the material falls within the Journal's scope and guidelines. He passes it on to one of the two Scientific Editors (one English, one French) who initiate the referee process. The process is essential but very time consuming; it requires numerous steps of correspondence and mailing to ready material for final publication. Authors often despair at the time-lag from submission to print. Currently the wait is almost a year, which is not unusual for quality scientific journals. Nor are all submitted scientific articles accepted. The referees are conscientious about maintaining the high quality of articles approved for publication in the Journal. This appears to be supported by statistics. In 1989 about



The Journal articles, sent in typewritten or printout form to the typesetter, are read and input via computer terminal by Denise Seveny, (at Nancy Poirier Typesetting Ltd.) who does so at a rate of up to 130 words a minute. She produces printer's proofs which the Journal staff proofreads.



Finished page proofs are produced, using the Journal staff's "rough" layout of pages, as a guide. When layout artist Effie Combe's finished page proofs are approved and necessary alterations are made, they move on to Dollco Printers.

70 articles were submitted, an increase of about 25 per cent over previous years. The Journal has apparently gained considerable prestige because the high quality has been maintained.

Non-scientific material

Every article, scientific or otherwise, is read carefully. Any errors in spelling, grammar and syntax are noted. If state-

ments raise doubt in the mind of the editor, he contacts an authority (either an official or official record) to erase either the doubt or to correct erroneous statements. Then, assuming the article merits publication, another scanning of the article may reduce the length of sentences to clarify the thought expressed or some of the terminology may be altered, for the same reason. Accordingly, paragraphs

are also reduced in length to make the message flow more smoothly.

Then cosmetics are applied. The editor decides the size and style of type . . . highlighting with italics or capital letters, screening (shading areas to be highlighted with color tints), and photographs in black and white, or color, size of those photographs most appropriate to make the page appear attractive to the reader, and of course, to illustrate an event or process.

The next step is typesetting. The author's product, often much different in appearance from the original manuscript, is sent to the typesetter. This individual follows the editor's instructions marked in margins, between paragraphs, or at the top and bottom of each page, (thoroughly messy in appearance to anyone else) sitting at the word processor keyboard and entering the information and instructions.

The first proof

The typeset manuscript, in the type size and style requested by the editor, is referred to as the "first proof". It is carefully read and compared with the author's manuscript (after editing) to ensure the typesetter has not made any "typos". Theoretically, after this proof-reading, no spelling errors of this nature, or broken lines of type should appear in the finished publication. But, as they say — don't bet on it! (See if you can locate any in this article that have escaped the proofreader's "eagle" eye.) Without trying to make excuses for ourselves it is always a bit of a miracle that so few errors actually get into print, considering

the thousands and thousands of words written and read in the course of preparing these proofs.

Throughout the varied evolving steps of the "growing" Journal the editor has been estimating the length of each article as the edition begins to take shape in his mind and on his work sheet diagrams. The typesetter is then able to provide the finished, corrected proofs. The editor begins to measure the actual length of each story and design each page so he can instruct the printer how he wishes the finished product to look.

The "dummy"

When all the typeset material is laid out and rough proofs have been pasted on pages to simulate the finished book, they are referred to as a "dummy". (This is not to add insult or injury to our poor personified manuscript nor to editors, typesetters or printers — but where the shoe fits!). At this stage the layout artist, following the editor's page designs, pastes down the finished proofs on cardboard forms, commonly referred to as "boards". They begin to resemble a frame of the actual Journal page size. Photographs are processed at the same time; enlarged, reduced or "cropped" (portions not required and eliminated in order to emphasize the subject matter).

Fillers

The layout artist, when everything is pasted up ready for the printer, will send finished "page proofs" to the editor and his staff to afford one last opportunity for revision and correction. A few cosmetic details require attention at this point.

There may be "holes" on pages, into which a "filler" is dropped. Readers may have wondered why a "Did You Know?" item shows up on a certain page, or how timely messages are printed supporting a campaign from another public health agency . . . UNESCO, Big Brothers, Red Cross etc. . . Or one of our exclusively-dental cartoons. These are the "fillers".

When the layout artist has honored the final cosmetic instructions, the final layout "boards" are sent to the printer. The printer prepares the boards which are photographed and what emerges are large negatives, the full size of each page. These negatives are applied to aluminum alloy plates and through an acid-etch process, all type and photos on the pasted up pages are engraved in infinite detail. They are finally ready to be printed on a \$5 million printing press — the ultimate in automation.

The raised portions on the aluminum alloy plates sheets pick up ink and rollers apply the ink to the Journal pages as they flash by in continuous sheets. In the meantime the covers (on heavier paper) are being produced on a smaller press. When the body of the book and covers have all been printed, they move together automatically through a "stitcher", in which the two portions are stapled together. The mammoth presses at Dollco Printing in Ottawa can print and assemble 17,000 eighty-eight page Journals in only 10 hours (average time).

Mailing

Immediately after the 17,000 Journals are printed, they are transported to a shipping and labelling firm. Here the mailing labels are affixed to each Journal and they



Jack Araujo, a lithographer and stripper at Dollco Printing in Ottawa, prepares negatives of Journal pages prior to the plate making process. The metal plates are then applied to the press.



The final step. This Journal is printed on a huge, fully-automated press, at Dollco Printing, Ottawa, seen in this photograph. The full quantity of about 17,000 eighty-eight page Journals can be produced in about 10 hours running time.

are sorted and bundled into postal codes. Trucked to the Post Office, the Journals are mailed "Second Class". This has financial advantages and delivery disadvantages.

With a "Second Class" status the Journals — all 17,000 — cost about \$1,700. per month for postage but they do not have priority delivery. If mailed "First Class" the costs could be ten times more expensive — high as \$17,000 per month. From the start of the printing to arrival at the Post Office requires as little as four days, but it may take as many as eight days for the Journal to be mailed across Ottawa!

Nothing is more frustrating to Editors than deadlines. They are the bane of our existence. Generally all deadlines can be managed. Authors can get material in on time; typesetters, layout artists and printers can and do perform well under all variants of pressure. But the most frustrating of all is to wait days, even weeks, for that over which we have no control . . . the delivery by Canada Post to the dental office. All possible efforts are being made in the ensuing year for the Journal to be delivered at least by the middle of the month in which it is published. Δ

Did you know?

Women live longer than men because their death rate from heart disease is lower and because they're less likely to develop certain high-risk behaviors. A report from a conference sponsored by the National Institute of Aging cited several major factors why women in U.S.A. live seven years longer than men. The main reason for the "gender gap" is atherosclerotic heart disease which accounts for 40 per cent of the sex difference. Social and behavioral factors account for another third of the sex differential in longevity. Causes of death in men include higher rates of suicide, automobile and other accidents, cirrhosis of the liver, lung cancer and emphysema. The experts agreed that other factors may be difference in genetics or immune function.

(from ADA News, Jan. 18, 1988)



Journals are despatched to all corners of Canada, and many foreign destinations, from this building — Ottawa's main postal terminal.

CDA Retirement Savings Plan

Unit values: (Funds are valued weekly)

Fund	Unit values as at	
	December 30, 1989	November 30, 1989
Bond & Mortgage Fund	71.63473	70.90029
Common Stock Fund	17.25550	17.13177
Money Market Fund	47.70000	47.18492
Balanced Fund	30.25725	29.94123

G.I.C. Fund

Term

	*Interest rates as at	
	December 30, 1989	November 30, 1989
1 yr	11.25%	11.25%
2 yr	10.85%	10.75%
3 yr	11.00%	10.70%
4 yr	10.90%	10.70%
5 yr	10.90%	10.70%

(*rates subject to change without notice.)

Total Assets (Market value) of the Plan as of:

December 30, 1989	November 30, 1989
\$118,485,546	\$117,119,993

For further information:



Write:

CDSPI

Retirement Services Dept.
Suite 600
2 Lansing Square
Willowdale, Ontario
M2J 4Z3

or phone, toll-free:

Western and Atlantic Canada
and Ontario Area Code 807
only 1-800-268-5418
Quebec and Ontario, (except Area
Code 807) 1-800-268-3411
Metro Toronto Area 497-7117

CDA'S 'SPECIAL FRIEND'



One of the most pleasant tasks carried out by CDA President Dr. Kevin L. Roach at the American Dental Association Convention in Honolulu, Hawaii, was the presentation of a unique CDA honor, "Special Friend of Canadian Dentistry Award" to Dr. Thomas L. Ginley, Executive-Director of the American Dental Association, seen on the left in this photo. Δ

The Dalhousie Faculty of Dentistry, Division of Periodontics recently paid tribute to long time faculty member, Dr. Gordon Pentz on the occasion of the annual Canadian Association of Periodontists meeting held in Toronto. Dr. Pentz, retiring as a full-time faculty member, was honoured for his 40 years of service to the Faculty of Dentistry and the Division of Periodontics. On hand were former and current faculty as well as local friends. Of note was the attendance of all but two of the graduates of the Dalhousie Post-Graduate Periodontics Program.

Dr. John Sterrett, Head of the Division of Periodontics presented Dr. Pentz with a plaque recognizing his distinguished career and a Robert Bateman print.

The plaque inscription sums it up best:

Dr. Gordon Pentz
Dalhousie Faculty of Dentistry
Division of Periodontics
1948-1989
40 years of Unselfish Service
Consummate Teacher
Valued Colleague
Friend of the Student Δ

1989 Canadian Dental Students' Conference in Vancouver

Students from each Canadian dental faculty met in Vancouver last autumn to discuss issues of mutual interest and learn about organized dentistry. Ten third year students, one from each Canadian dental faculty, two fourth year students, and one new graduate, assembled to discuss a wide range of issues such as stress in dental schools, licensure requirements, the current dental curriculum and increasing students' involvement in organized dentistry.

The Conference was organized by the Canadian Dental Association and the hosts were the Faculty of Dentistry of the University of British Columbia and the College of Dental Surgeons of British Columbia. It was funded by the Canadian Fund for Dental Education and Pfizer Canada Inc. Δ



Students attending the 1989 Canadian Dental Students' Conference in Vancouver posed for this group photograph. They are, left to right, back row: John Armstrong, University of British Columbia; David French, University of Alberta; Keven Hockley, University of Western Ontario; Paresh Shah, University of Manitoba; Léo Gaudet, University of Saskatchewan; Dr. Scott McLean, Sherwood Park, Alberta, and Robert Ganske, Université Laval; front row: Linda Wiltshire, McGill University; Linda Teteruck, Director of Communications, Canadian Dental Association; Jocelyne Pearce, University of Toronto; Nicole Baggs, University of Western Ontario; David Engelsberg, McGill University; Shiva Namjoo Nik, Université de Montréal; Sandra Finch, University of British Columbia, and Kerim Ozcan, Dalhousie University.



A young patient in the Izaak Walton Killam Hospital for Sick Children in Halifax is seen receiving a Hallowe'en treat from the Nova Scotia Dental Association. His pleased mother, right background, is Mrs. Suzanne Francoeur, from New Brunswick.

In the spirit of Hallowe'en, the Nova Scotia Dental Association put together approximately 400 packages which were distributed to pediatric patients in hospitals across that province on October 31st. last.

The Association thought it would be a good idea to remind the children of good dental hygiene on a day that is so often associated with tooth-damaging candy, and also give them a few hours of enjoyment on a day when they would ordinarily be out having fun with their friends.

The packages contained dental activity books, toothbrushes, stickers and the 5-Point Prevention Plan brochure to help impress upon them to learn the importance of good dental hygiene. Δ

The DAP Advisor offers information, ideas and advice to improve dentist/patient communication, raise awareness about good dental health, and help your practice become busier.

Phone Finesse Part 2: The Powers of Recall

Your office telephone is the lifeline of your practice. It generates much of your business and enables you to build and maintain a thriving practice. Last month we looked at how to handle incoming phone calls, and at the basic phone skills your receptionist should know. We saw how a few simple rules of telephone etiquette can make all the difference in communicating care and concern to your patients.

This month we will look at outgoing calls: specifically, at the phone calls your receptionist makes to remind patients that it's time for their next visit.

Recalling patients for their next appointment is one of the activities that keeps you in business. A recent survey of Canadian dentists confirms that the telephone plays a central role in most recall efforts. The telephone figures prominently in the recall efforts of 81 per cent of survey respondents. In most instances, the patient was phoned to make an appointment, and a reminder card was sent if the patient couldn't be reached. In other cases, the patient made an appointment at the time of the last visit, and was phoned a few days beforehand to remind them about their appointment.

Almost without exception, the receptionist is the primary staff person responsible for recall.

A receptionist with good powers of recall is invaluable to your practice, because she makes sure there is always a patient ready to fill your chair. Your receptionist needs two things to be an effective recaller. She needs to know and apply the three C's of telephone etiquette — courtesy, consideration and common sense. And she needs to know the basic steps in recalling people by phone. To help her hone her recalling skills, you might want to discuss the following:

- Recall takes time — 78 per cent of dentists who responded to the recall survey said recalling people by phone took up to two hours of their receptionist's time each day. Because your receptionist must contend with arriving patients, incoming phone calls and whatever else is going on in your office at the same time, it's a good idea to break recall phoning up into small chunks of time. Not only does this approach provide your receptionist with some relief from constant phoning, but it leaves your line free for incoming calls.
- If you find that your receptionist has a lot of patients to call each day, and especially if the list seems to be growing, you might want to consider installing a special phone line for recall only.
- The receptionist should be aware of the best time to contact each patient on her recall list. Some people will not mind a phone call during business hours. Others may perceive it as an intrusion. Whatever the arrangement, there should be some notation beside the patient's name indicating the best time to call.
- Sometimes the patient is unable or unwilling to book an appointment in the month they are due. Your receptionist should ask the patient's permission to contact them again in a month's time. If the patient agrees — and they usually will — the receptionist needs a system to remind herself to follow through and phone again.
- Generally speaking, once is enough. After calling to remind the patient of their impending appointment, the receptionist need not remind them by phone again. Unless, of course, the patient requests it.

When your receptionist talks to patients on the phone, does she:

- speak directly into the receiver?
- hold the mouthpiece about two inches from her mouth?
- speak slowly and clearly?
- speak in a moderate tone — not too loud, not too soft?
- have appropriate inflection in her voice?
- sound like she enjoys what she's doing?

The DAP Advisor is a service of CDA's Dental Awareness Program, an ongoing campaign dedicated to helping all Canadians keep their teeth Good For Life.

DENTAL HEALTH MONTH 1990

Bob is Back!

And he's set for the 90s

With t-shirts, posters, balloons
and other things that'll bring a
CELEBRATION OF THE SMILE
to your office and community.

And help make Canadians more
aware of good dental health.

High quality products.

Reasonable prices.

And Bob Live too!

So bring on the decade.

And get ready to celebrate!

Celebration Poster

1989
Prices!

More than a poster - an original work of art! Created by renowned Canadian illustrator John Fraser, this full-colour print captures the spirit and warmth of "A Celebration of the Smile". It'll look great in your office or waiting room. Approx. 18" x 24"

CDA members: \$2.00
Non-members: \$4.00



Display Card

Put it on a waiting room table and on your office desk. Display it in the reception area. Give it to patients as a jumbo reminder of the Five Point Prevention Plan. Folds to 3 1/2" by 8".

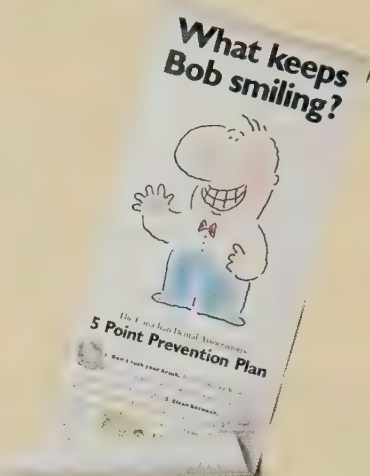
CDA members: \$.60

Non-members: \$1.20

Bob Poster

Size 12 1/4" x 36"

CDA Members: \$1.00
Non-members: \$2.00



Bob's Radio Commercial

A 30-second public service announcement for use by all local and regional media relations organizers during Dental Health Month.

CDA members: \$8.00
Non-members: \$16.00

Display Balloon

A BIG balloon - it inflates to 40 inches around - for displays and exhibits.

CDA members: \$9.75
Non-members: \$19.50

Super Stickers

Just like regular stickers, only five times bigger!
11 3/4" x 2 7/8"

CDA members: \$.50
Non-members: \$1.00

BIG Bob - Special Order

And we mean BIG. He stands 5'3" tall. Put him in your waiting room and watch the big smiles he gets. This special order item will be made available if CDA receives sufficient orders.

CDA members: \$50.00

T-Shirt

One size—Extra Large.

CDA members: \$11.95
Non-members: \$23.95



Golf Shirt

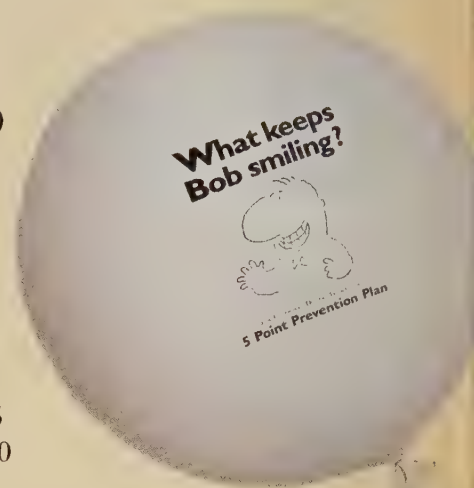
Available in S, M, L, XL.

CDA members: \$26.95
Non-members: \$53.95

Sweatshirt

Also available in S, M, L, XL.

CDA members: \$29.95
Non-members: \$59.95



1989
Prices!



1989
Prices!

Balloons

Package of 50

CDA members: \$10.50/pkg.
Non-members: \$21.00/pkg.



Buttons

Package of 25

CDA members: \$9.00
Non-members: \$18.00

Celebration Planning Kit

For community organizers. This kit is brimming with ideas, activities and tips that will help you bring a Celebration of the Smile to your community this April!

FREE!

Magnetic Bob

Such an *attractive* character! Give him to patients to stick on refrigerators and filing cabinets.

CDA members: \$.90
Non-members: \$1.80



Stickers

A perfect giveaway to young patients (and to the young at heart!)
roll of 100

CDA members: \$7.00
Non-members: \$14.00

Price Reduced!



Appointment Cards

With the 5 Point Prevention Plan and space for the patient's next visit. Fits in their wallet.

Ask the CDA Order Section about personalizing these cards.

CDA Members: \$25.00 pkg. of 500
Non-members: \$50.00 pkg. of 500



Bob Live

New for Dental Health Month 1990! Bob is coming to life as a lovable full-size costumed mascot. He'll bring smiles and excitement to activities and events in your office or your community. For more information, contact your provincial dental association or the CDA.

Dental Health Month is a service of CDA's Dental Awareness Program, an ongoing campaign dedicated to helping all Canadians keep their teeth Good For Life.

Order your Dental Health Month materials today by mail or call our toll-free numbers.

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2. By phone: To place your order call:
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Please print or type

Complete and mail to: **The Canadian Dental Association**
Order Section, 1815 Alta Vista Drive, Ottawa, Ontario K1G 3Y6

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Suite #:

City:

Province:

Postal Code:

Telephone:

CDA Membership Number:

()

☐ Cheque / money order enclosed ☐ VISA ☐ MasterCard

Number:

Expiry date:

Item	Quantity	Price		Total
		Mem.	Non Mem.	
Bob Poster		1.00	2.00	
Buttons (Pkg. of 25)		9.00	18.00	
Super Stickers		0.50	1.00	
Stickers (Pkg. of 100)		7.00	14.00	
Display Card		0.60	1.20	
Celebration Poster		2.00	4.00	
Magnetic Bob		0.90	1.80	
Appointment Card (Pkg. 500)		25.00	50.00	
Balloon (Pkg. of 50)		10.50	21.00	
Display Balloon		9.75	19.50	
T-Shirt		11.95	23.95	
Sweatshirt* S M L XL		29.95	59.95	
Golf Shirt* S M L XL		26.95	53.95	
Radio Commercial		8.00	16.00	
Planning Kit		Free	Free	

Special Order (Only available if sufficient orders are received)

Display Bob		50.00	n/a	
*Please circle shirt size		Sub Total		
Please allow 4-6 weeks for delivery		Ontario residents please add 8% PST		
		Shipping		
		TOTAL		



The production of this order form has been sponsored by the Canadian Fund for Dental Education.

See you in Surprising Singapore!

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**is to be held in
exotic SINGAPORE,
September 8th-14th 1990.**

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to all our colleagues and
their spouses to join us
at the Conference.

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Ottawa 1990: Convention Countdown



The Canadian Museum of Civilization in Hull, Québec — with Parliament Hill in the distance, across the Ottawa River.
(Canada's Capital Visitors & Convention Bureau photo.)

1990 CDA Convention — Reaching New Heights



I've got plenty of exciting news to share with you this month, to bring you up-to-date on this year's Convention preparations.

As you already know, registration to the 1990 convention is being offered 'free' to all CDA members — without any increase in fees. It's a membership benefit that, to my knowledge, has no precedent in dental associations.

In this issue of the CDA Journal you will find first-hand information regarding our stimulating 1990 Pre-convention Program. You will be able to read all about the speakers who will address pre-convention delegates and get the 'low-down' on the sessions being offered.

Undoubtedly, some will be searching for a pre-registration form to ensure participation in these courses. However, as usual, these forms will make their debut in the March issue of the CDA Journal. In addition, the 1990 Preliminary Program will be mailed out to all dentists in March 1990.

Twenty-seven world renowned speakers have already confirmed their participation in our 1990 Convention, and we are still counting. This figure does not include guest speakers from the Canadian Forces Dental Services, the University of Toronto, the University of Western Ontario, the Royal College of Dentists of Canada nor the CFDE guest speaker. When we promised you the 'largest and best' scientific CDA program ever — we meant it.

In future CDA Journal issues we will reveal the identities of the 1990 guest speakers and the details of their presentations. In the meantime, take a few minutes to browse through the Pre-Convention Program highlights which follow.

Block the whole week — August 25-29, 1990 — in your 1990 appointment book. This week will be witness to the biggest and most powerful scientific program I have ever participated in putting together. And besides, the price is right!

*Dr. Michel Jahjah,
General Chairman
CDA Conventions*

Ottawa 1990

1990 Pre-Convention Program Highlights

"Predictable Anterior Crown and Bridge"



featuring

Dr. William Strupp, Jr.

Clearwater, Florida

Clinical techniques leading to excellent and predictable esthetic results in anterior crown and bridge dentistry.

Topics covered during this pre-convention course will include:

- Tooth Preparations
- Tissue Management in Critical Cosmetic Zones
- Impression Procedures - How to NEVER Miss
- Total Hemorrhage Control
- Provisional Restorations by Staff with Perfect Fit/Function/Esthetics
- Materials/Equipment/Supplies Necessary to Do a First Class Job
- Soft Tissue Models for Soft Tissue Success
- Transmitting Esthetic Information to the Laboratory

The presenter, Dr. William Strupp graduated from Emory in 1969. He served in the Air Force for two years and has been a full-time practicing dentist in Clearwater, Florida since 1971. He is a member of the ADA, FDA, West Coast Dental Association,

the Upper Pinellas County Dental Association, the American Academy of Cosmetic Dentistry, the Academy of Operative Dentistry, the American Prosthodontic Society, the American Equilibration Society, the American Academy of Periodontology and is a Fellow in the International College of Dentists.

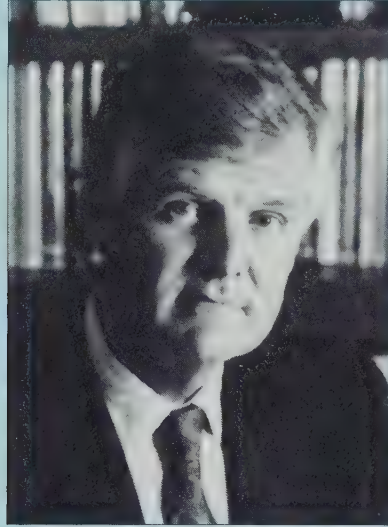
Dr. Strupp has delivered over 180 presentations throughout the United States, Canada and Europe. He has addressed dentists at the ADA National Convention in Kansas City and in Miami, the Colorado Prosthodontic Society the American Dental Society Meeting of Europe, the Dallas Mid-Winter Meeting and the American Academy of Restorative Dentistry. He has delivered seminars on restorative dentistry, occlusion, practice management and esthetics.

A 1989 survey conducted by *Dentist Magazine* rated Dr. Strupp as the third most popular speaker in prosthetics (fixed). He has also authored two books, one on practice management entitled "The Six Point Bulletproof Sales Process - How To Make People WANT the Dentistry they NEED" and an instructional manual for teaching dental auxiliaries how to make temporaries entitled "Esthetic & Predictable Acrylic Provisional Restorations".

Ottawa 1990

1990 Pre-Convention Program Highlights

"Building a More Successful Practice"



featuring

Dr. Dick Barnes

Alpine, Utah

Dr. Dick Barnes' down-to-earth approach to marketing dentistry and his common sense motivational techniques are reputed to provide consistent increases in income and patient flow.

The Dick Barnes techniques give dentists a chance to form new perspectives on their practice. By concentrating on simple yet proven ways to motivate patients and staff, Dr. Barnes offers easily implemented changes that will increase production and actually decrease stress and hours at work. Some of the topics that will be emphasized during the program are:

- Lowering stress and increasing satisfaction with dentistry as a profession.
- Staying in control of your practice by recognizing and supporting the responsibilities of your staff.
- Controlling your appointment book for maximum production. How to not be just busy, but busy and profitable.
- How to comfortably convince your patients to have the dentistry they need.
- Understanding patient behaviour, or what to say to "I'll think it over" patients.
- The pros and cons of dental advertising.

- Increase new patient flow despite increased competition.
- The art of case presentation - a step-by-step procedure for achieving acceptance of treatment each and every time.
- Financial arrangements you and your patient can live with.
- How to establish appropriate fees - and get them.
- How to double production with existing patients.

Dr. Barnes was born in Taft, California. He is a graduate of the Marquette Dental School in Milwaukee, Wisconsin and did undergraduate studies at Brigham Young University in Provo, Utah. He was a member of the Alberta Dental Association and the California Dental Association. In addition, Dr. Barnes is a founding member of the American Academy of Cosmetic Dentistry and was a dental educator at the University of Southern California for three years.

Dr. Barnes frequently writes for *Dental Economics* and *Dentistry Today*, two American dental publications. He has lectured at numerous dental meetings including, the 1986 American Dental Association's Annual Scientific Sessions, the 1989 American Academy of General Dentistry, 1989 Big Apple Dental Meeting, the 1989 Chicago Mid-Winter Dental Meeting. In addition, he is scheduled to speak at the 1990 FDI 78th World Congress being held in Singapore in September 1990.

Ottawa 1990

1990 Pre-Convention Program Highlights

And back by popular demand...

"Endodontics for the 1990's"



featuring

Dr. Irvin A. Roseman

Wilmington, North Carolina

This seminar will bring to the practitioner the principles necessary to perform predictable and effective endodontic therapy. Through step-by-step procedures, illustrations and case presentations which will encompass all current concepts in root canal therapy, the participants will easily be able to incorporate these techniques profitably and efficiently into their practice.

The course will include lectures to cover theoretical points on

- Diagnosis
- Instrument Length
- Instrumentation Complete
- Mast Cone Placement & Completion
- Follow-up
- Post & Core
- Trauma
- Bleaching & Restoring Endo Teeth

The hands-on participation will cover Molar Endodontics. Participants will have the opportunity to cleanse, shape and obturate canals using simulated tooth models. They will also be introduced to the use of the Endotec - a new technique-sensitive procedure.

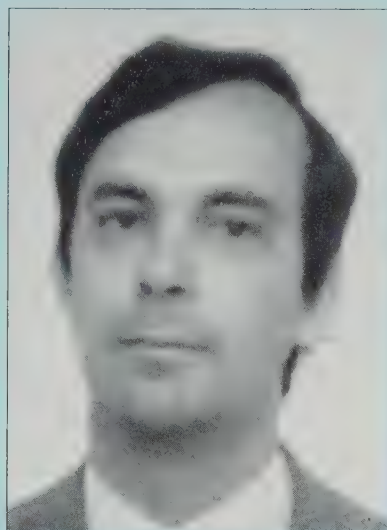
Class size will be limited so each participant can be assured of individual attention to maximize the learning experience.

Dr. Irvin Roseman is a 1967 graduate of the School of Dentistry, University of North Carolina. Following duty as a Dental Officer in the U.S. Army, he entered general practice. After an Endodontics Residency at the University of Detroit, he established his own specialty practice in 1979. He is a member of the Southern Endodontic Study Group, the American Association of Endodontists and the American Dental Association. He has several national publications and has lectured extensively on Endodontics throughout the United States. Dr. Roseman was a part-time Clinical Instructor at the UNC School of Dentistry and the University of Detroit.

Ottawa 1990

1990 Pre-Convention Program Highlights

"Basic Clinical Prosthetic Training Course on Osseointegrated Implants"



featuring

Dr. Torsten Jemt

Gothenburg, Sweden

This course is designed to give prosthodontists and general practitioners knowledge about the prosthetic procedures of the Branemark System.

Topics to be addressed will include:

- Introduction and review of clinical and physiological problems associated with edentulism and partial edentulism.
- Presentation of conventional treatment concepts including comments on other implant systems.
- Review of the scientific background of the Branemark system including biological considerations, biomechanical aspects and technical engineering aspects.
- Brief overview of surgical procedures and presentation of surgical aspects of significance for prosthetic rehabilitation.
- Prosthetic treatment planning, patient selection, indications and contraindications.
- A detailed presentation of prosthetic, clinical and technical aspects covering various techniques and the use of different materials.

- Hands-on training that includes presentation of components, instruments and the different steps involved in the clinical treatment sequence.
- Presentation of patients in various stages of treatment including completed patients.
- Discussion of possible complications and how to handle them.
- Discussion of patient control and maintenance program including radiographical technique and computer possibilities in long term patient follow-up.

Dr. Jemt obtained his D.D.S. in 1975 and specialized in prosthodontics in 1982. His Ph.D. thesis was defended at the University of Gothenburg in 1984. In 1988 he was made Associate Professor in Prosthodontics. Since 1986 he has been Associate Head of the Branemark Clinic. Dr. Jemt has presented more than 100 lectures to professional audiences and is the author of over 30 scientific publications. He is currently involved in research on single tooth replacements and has developed a single-tooth osseointegrated implant.

**Look for the advance registration and housing forms
in the March Issue of the Journal.**

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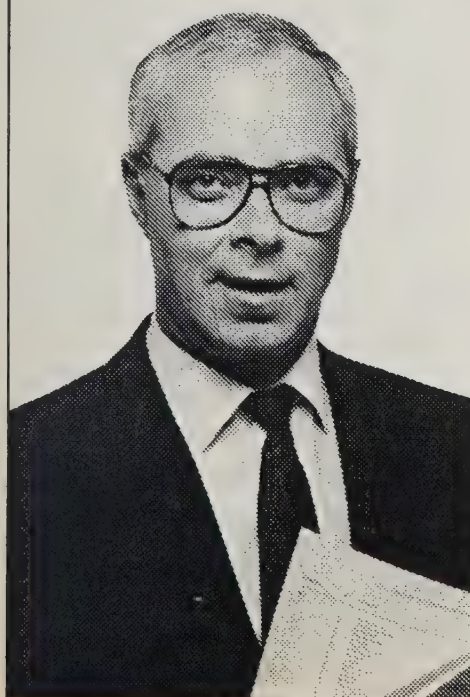
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BOARD OF GOVERNORS NOTICE OF MEETING

The Interim Meeting of the Board of Governors of the Canadian Dental Association will be held March 30-31, 1990 (Friday and Saturday respectively) at the Ottawa Congress Centre, Ottawa, commencing at 9:00 a.m. on March 30.

It is brought to your attention that meetings of the Board of Governors are open to all members of the Association.

The Board is composed of twenty-eight governors with voting privileges and a Chairman. Governors represent members across Canada on a 1 to 500 ratio. The Canadian Forces Dental Services, Student members and affiliate members from Québec are represented by one member each.

In addition, there are two non-voting members, namely, the senior dental representative of the Department of National Health and Welfare and the Department of Veterans Affairs.

A complete listing of the Board of Governors follows:

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To be announced.

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Dr. W. Steggle

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Smith Falls, Ont. K7A 3R3

Dr. B.H. Dolansky

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Dr. J.R. Brookfield

Box 575
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Dr. R.M. Balfour

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Dr. J. Gryfe

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Weston, Ont. M9N 1W4

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171 Louis Lalande
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3799 Lacombe
Montréal, Qué. H3T 1M3

Dr. B. Dolman

304 - 5885 Côte des Neiges
Montréal, Qué. H3S 2T2

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To be announced.

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55-A Cashin Ave.
St. John's, Nfld. A1E 3B2

NOVA SCOTIA

Dr. I. Vogan
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Partnership Practice

L'exercice en association

1. Anderson, P.E. "1987 practice survey — part 4. Group practices show big gains." *Dental Economics*. Jan. 1988, v. 78(1), pp. 29-30, 32, 34-6.
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3. Bramson, J.B. "Practice protection through professional involvement." *Dentistry*. Feb. 1988, v. 8(1), pp. 10-2.
4. Dickey, K.W. "A survey of dentist/employee relationships." *Journal of Dental Practice Administration*. Jul.-Sep. 1988, v. 53, pp. 116-22.
5. Callen, C.D. "The role of life insurance." June 1988, v. 78(6), pp. 70, 72, 75.
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8. Cassin, A.M., "A gentleman's word [letter]." *British Dental Journal*. Sep. 1988, v. 165(5), p. 160.
9. Combs, H.R. "Hiring an associate wasn't the answer." *Dental Economics*. Nov. 1988, v. 78(11), p. 45.
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- graduation — transition-ownership." *Journal of the American Dental Association*. Mar. 1988, v. 116(3), pp. 333-5.
11. Hardigan, J.E. and Hagan, B.A. "Associateships in dental practice." *Virginia Dental Journal*. Jan.-Mar. 1988, v. 65(1), pp. 34-45.
 12. Hulsebosch, C. "Like mother, like daughter." *Florida Dental Journal*. Spring 1988, v. 59(1), pp. 40-1.
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 14. McNulty, B. "Laying the groundwork." *Ontario Dentist*. Jul.-Aug. 1988, v. 65(6), pp. 13-4.
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 16. Schulman, B. "Creating successful partnerships." *Dental Economics*. Mar. 1988, v. 78(3), pp. 29, 32, 34.
 17. Shortill, W.W. "A retirement scenario." *Canadian Dental Association Journal*. May 1988, v. 54(5), pp. 339-41.
 18. Shulman, L.B. "Dental practice protection by funded continuation plans." *New York State Dental Journal*. Mar. 1988, v. 54(3), 36-8.
 19. Spencer, A.J. and Lewis, J.M. "The practice of dentistry by male and female dentists." *Community Dentistry and Oral Epidemiology*. Aug. 1988, v. 16(4), 202-7.
 20. Tucker, C.W. "The mature dentist." *Journal of the American Dental Association*. Sep. 1988, v. 119(3), p. 393-5.

21. Wentworth, E.T. Jr. "Beware of the handshake agreement." *New York State Dental Journal*. Mar. 1988, v. 54(3), pp. 23-4.
22. West, M.M. "New dentists' problems [letter]." *Journal of the American Dental Association*. Dec. 1988, v. 117(7), pp. 812-3.
23. Winter, L. "Associateships, partnerships, buying, and selling. Strategies for established practitioners and new dentists." *Dental Clinic of North America*. Jan. 1988, v. 32(1), pp. 99-112.

One copy of the above package of articles is available for \$5.00 to all CDA members and for \$10.00 to non-members. (Ontario residents, please include 8% sales tax.)

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As a convenience to all CDA members in the various time zones in Canada, it is now possible to call the CDA Library, between 4:30 pm and 8:30 am Ottawa time, in addition to during regular library hours (8:30-4:30 EST)

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DIAGNOSIS AND TREATMENT PLANNING IN DENTOFACIAL ORTHOPEDICS

by Frans P.G.M. Van der Linden and Herman Boersma

Quintessence Publishing Co. Inc.
London, UK., 1987
336 pages

This book is one of a series written by the first author (Van der Linden) in which he has previously discussed development of the dentition, facial growth and facial orthopedics. As the authors state in their preface, this work is written primarily for dental students and practising dentists, to inform them of diagnostic criteria and clinical procedures to identify and treat unfavourable dental development and facial growth. An additional objective is to provide the dentist with the relevant information to treat simple orthodontic problems as well as the ability to recognize more complex situations which require referral to a specialist.

The early chapters discuss etiology, anomalies, examination of the patient and diagnostic aids. The middle chapters deal with examination of gathered material, diagnosis and classification, indications and contraindications for treatment and starting points in treatment planning. Later chapters address treatment planning for specific orthodontic problems — Functional anomalies (mouth breathing, thumb and finger habits), Class I anomalies, Class II division 1 anomalies, Class II division 2 anomalies, Class III anomalies, and open bite discrepancies.

The authors use a consistent and logical sequence in each of the chapters dealing with treatment, discussing anatomic aspects, when and how to treat, vertical and transverse abnormalities, crowding and spacing concerns, profile considerations, retention and relapse.

While the text and terminology used is sometimes a bit wordy, the authors do an admirable job covering the complexities of gathering a data base, of deciding upon a suitable course of treatment, and the avoidance of potential problems. However, several negative factors related mainly to the publishing, detract from the enjoyment of this book. The most nagging problem is that of providing incorrect page numbers or figures when referring to previous chapters, as well as typographical errors and incorrect numbers related to the reference section at the end.

The book could benefit from a greater number of clinical photographs to help illustrate some of the concepts presented, and some of the figures could be simplified.

Overall, this work is a very useful addition in presenting orthodontic diagnosis and treatment planning for general practitioners. However, due to the fact that the authors discuss many of the more specialized aspects of diagnosis and treatment, orthodontists will also find this a beneficial and interesting book.

This book was reviewed by:
Dr. Jack Turkewicz
Associate Professor
Orthodontic Section
Université de Montréal
Faculté de médecine dentaire

MASTERING THE ART OF COMPLETE DENTURES

Halperin/Graser/Rogoff/Plekavich

1988 Quintessence, Chicago
168 Pages

The authors of this first edition text are well qualified prosthodontists, trained and educated under the late Dr. Allen A. Brewer. The writing of this text has captured the teaching philosophy and clinical acumen of their mentor. Dr. Brewer was noted for his "pearls of wisdom" which are appropriately expressed throughout the text. They provide a personal touch to the contents and allow for easy reading of the material.

Although it is not a comprehensive text on removable prosthodontics, it is a text which discusses basic clinical techniques and a general philosophy of treatment. The clinical techniques presented in this text are those developed, practiced and taught by Dr. Brewer.

This text is organized by the sequence of procedures required to treat edentulous patients.

The first chapter "Examination, Diagnosis and Prognosis" is compulsory for any serious student or practitioner of prosthodontics. This chapter contains practical suggestions to improve diagnostic and prognostic skills.

Chapters 2 through 6 describe and present a philosophy of methods to obtain impressions for an edentulous environment. The manipulation of anatomic regions and how to accomplish the clinical effects will help any practitioner

understand and obtain better impressions. This approach is unique as presented in this text.

Chapters 6 through 8 present a rationale on technique to accomplish jaw relations records utilizing processed denture bases. The methodology presented to make and verify centric jaw relation is sophisticated and accurate. Following these procedures an accurate articulator mounting is almost guaranteed prior to proceeding with treatment. This is, however, a complicated procedure but it is well described and illustrates the philosophy on which this book is based.

Tooth selection, arrangement and confirmation of both anterior and posterior teeth are presented in Chapters 9, 10 & 11. The guidelines for selection of appropriate prosthetic teeth based on the material of the prosthetic tooth is an excellent summary of this often neglected topic. The summary for posterior tooth occlusion is also well presented. The emphasis is on anatomic, non-anatomic and lingualized cusp occlusion. All three are presented in a concise manner. The three types of posterior occlusion are compared in a practical manner.

Chapter 12 covers the necessary approach to processing and finishing of the prostheses. Chapter 13 described the insertion and post-insertion maintenance of prostheses. The emphasis is placed on the need for scheduled post-insertion appointments. Clinical procedures for post-insertion adjustment and long-term denture maintenance are presented with the concept of preservation of oral tissues as well as maintaining prostheses for lengthy service.

Chapter 14 presents a summary of removable partial denture treatment. Although brief and not necessarily following within the title "Mastering the Art of Complete Dentures", the material presented does continue with the overall philosophy and teaching of Dr. Brewer. There are some gems to be found within this chapter.

I am certain that in the future editions of this text that clinical photographs will include gloved hands. The two-tone figures found in the text could be improved in quality, however, their interpretation does not present any problems.

The authors of this text are to be commended for the presentation of material in this text. It is unique because of the emphasis on a philosophy and practical treatment procedures as developed over a long period of time by the late Dr. Allen

A. Brewer. This text would make an excellent contribution to a serious student of prosthodontics either at a postgraduate training program level or a serious general practitioner.

*This book was reviewed by:
W.B. Love, DMD, MSc,
Professor
Faculty of Dentistry
University of Manitoba*

“ESSENTIALS OF COMPLETE DENTURE PROSTHODONTICS”

**Deuxième édition,
édité par Sheldon Winkler**

*1988, PSG Publishing Co., Inc.
464 pages with illustrations*

Défi d'envergure que de rédiger un livre qui traite des différents aspects de la prothèse dentaire amovible. La découverte de nouveaux matériaux et l'élaboration de concepts adaptés à une nouvelle technologie remettent en question certains principes de la prothèse dentaire qui furent longtemps immuables. Le contenu de cette deuxième édition renferme les connaissances qu'un dentiste doit absolument maîtriser avant de confectionner des prothèses. Le résumé du contenu se lit à la table des matières où l'on constate la participation de 25 auteurs dont la plupart sont des penseurs dans le domaine.

Le texte est soutenu par l'expérience accumulée de prosthodontistes reconnus et est caractérisé par le souci tant de poser un diagnostic précis des maladies bucco-dentaires que de développer pour chacune de ces maladies un plan de traitement qui respecte les concepts biologiques et physiologiques de l'environnement buccal.

Le premier chapitre propose des données d'anatomie, de physiologie et de nutrition et se complète par des notions qui éclairent sur les causes de la perte du tissu osseux alvéolaire. La présentation de ces théories est suivie par une discussion sur la signification clinique de ce processus. La partie suivante met l'accent sur l'examen buccal, le diagnostic, le traitement des muqueuses et sur la procédure de confection des prothèses complètes. Le troisième chapitre fait mention des avantages, désavantages et des indications des différentes techniques de rebasage et de regarnissage en plus de suggérer des moyens de surmonter chez les patients les problèmes post-insertion. Quant à la

dernière partie, elle est consacrée à la description de techniques plus complexes telles que les implants, l'overdenture, les prothèses maxillo-faciales, les prothèses de transition, etc.

Cette édition présente une réorganisation et une relocalisation de certains thèmes traités dans la première édition. À titre d'exemple, les données présentées sur la nutrition apparaissent dans la deuxième édition au premier chapitre au lieu d'être traitées dans le 3^e chapitre avec les notions de santé chez les personnes âgées. Cette modification pourra aider le lecteur à faire une meilleure synthèse des moyens mis à sa disposition pour traiter une muqueuse traumatisée avant la prise de l'empreinte finale. Cette façon de percevoir les différentes étapes ne pourra que faciliter une meilleure vue d'ensemble.

J'attire l'attention du dentiste sur le deuxième chapitre qui présente un contenu pratique et très élaboré sur les multiples étapes de confection des prothèses. Les techniques sont clairement décrites de sorte que celui qui désire parfaire ses connaissances n'aura pas de difficulté à saisir le message de l'auteur. À la fin de ce chapitre, comme partout d'ailleurs, une liste impressionnante de références est citée pour satisfaire celui qui est en quête d'explications et d'informations supplémentaires.

En général, les nombreux aspects de la prothèse sont discutés mais, dans certains cas, il y a manque d'informations pertinentes. Au chapitre des implants, l'auteur s'abstient de parler des implants osseo-intégrés et laisse dans l'ombre des

connaissances très importantes. Ce genre d'implant marque un tournant en dentisterie et possède le potentiel pour révolutionner l'avenir de la prothèse.

Pour permettre au dentiste d'être plus près des problèmes émotifs que vit son patient et pour mieux répondre à ses besoins, l'aspect psychologique aurait eu avantage à être abordé plus profondément. L'évolution rapide des individus et la prise de conscience des effets négatifs de l'extraction des dents se traduisent par des exigences de plus en plus marquées chez les porteurs de prothèses.

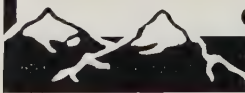
L'insertion du traité sur les articulateurs est élaboré et peut devenir une lecture fastidieuse pour le généraliste qui n'est pas toujours préoccupé par l'utilisation de tous ces instruments sophistiqués. Par contre, l'étudiant sous-gradué trouvera j'en suis sûr dans ce chapitre un grand intérêt à découvrir et à comparer les avantages et les inconvénients d'un appareil par rapport à l'autre.

Ce livre est incontestablement un ouvrage guide et de référence pour tous les dentistes. Clair et concis, il est facile d'accès et présente quantité d'informations. Comme je l'ai mentionné auparavant, une des valeurs certaines de ce travail réside dans la sélection des penseurs qui ont contribué à écrire ce livre. L'expertise clinique et les connaissances scientifiques de ces derniers ne peuvent que rehausser la valeur de l'ouvrage. Sans doute, ce livre se classe parmi les meilleurs sur le marché dans ce domaine.

*Normand Tardif
Prosthodontiste
Ste-Foy, Québec*

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¹ American Dental Association Council on Dental Therapeutics. Acceptance of (synthetic phenol) disinfectant for instruments and equipment. JADA 110 394, 1985



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Journal 'Opinion' column is discussed

Editor's Note: Because of the number and length of letters on an apparently controversial subject, space limitations do not allow listing the writers' references. These may be obtained by contacting the authors directly.

'Opinions show a lack of clinical experience'

As president of the International College of Cranio-Mandibular Orthopedics, I feel an obligation to respond to an opinion published in the Canadian Dental Journal, Sept. 1989, Vol. 55, No. 9, pp. 749-750. The section entitled "It's My Opinion" provided space to contributors whose roles and reputations were such that their combined opinions were profound according to the editor's note.

An overview of the opinions leads me to the conclusion that the contributors have little or no daily clinical experience in the treatment of craniomandibular disorders. Their opinions relegate the use of biomedical electronic instrumentation to an unproven category and suggest that the data derived is incorrect. They refer to a study documenting that "81 per cent of symptomless adults taking part in this study were really dysfunctional."¹ They continue by citing an excerpt from a second article that states there is "almost universal existence of various degrees of muscle accommodation and sustained tension" and conclude that these statements are fatuous and show a lack of objectivity.² The contributors' opinions show a lack of clinical experience. Dentists who utilize biomedical electronic instrumentation on a daily clinical basis can document that most patients have a neuromuscular dysfunction and every patient has some degree of accommodation and tension. This does not mean that all patients who demonstrate accommodation and tension require treatment. This is simply a fact.

The contributors' opinions continue by inferring that those who use biomedical

technology consider the physical examination as less "superior" than the quantitative data derived from biomedical electronic instrumentation. There could be nothing further from the truth. Dentists who use modern technology combine the data derived from their instrumentation with a comprehensive physical examination. We incorporate all modalities that enhance our diagnosis. A diagnosis may include the use of magnetic resonance imaging (MRI), CT Scans, tomographs, ultra-low frequency T.E.N.S., ultrasound, etc. to augment the data derived from the biomedical instrumentation. Our members are acutely aware of the multidisciplinary approach to the treatment of craniomandibular disorders based on a comprehensive examination and objective data accumulated, and, when applicable, patients are referred to other health providers who work in conjunction with the dentist.

There are numerous scientific studies that support the efficacy of biomedical electronic instrumentation as a valuable aid in the diagnosis and treatment of craniomandibular disorders. The technology is not new, it was reported in the Journal of the American Dental Association, Vol. 90, April, 1975, pp. 834-840 and the accuracy of the mandibular kinesograph was documented in a research article in the Journal of Prosthetic Dentistry, Vol. 44, No. 6, pp. 656-666. I have numerous articles from refereed journals as a result of a review of the literature that support the efficacy of the instrumentation. All 29 universities in Japan have the instrumentation and most universities in Italy.

The contributors seem to be of the "opinion" that those who utilize biomedical electronic instrumentation do so to differentiate between symptomatic and asymptomatic patients. This simply is not true. The quantitative data derived is used in conjunction with a comprehensive clinical examination, appropriate radiographs, study models, etc.

We do not treat asymptomatic patients who are in an accommodative pathologic position unless full mouth reconstruction is contemplated or full dentures are constructed. We understand that a patient can be predisposed to craniomandibular disorders and may never become sympto-

matic unless a precipitating factor occurs. Another opinion that deserves scrutiny is that a clinician using our technology "may take radical steps to change the face height of his patient." This is utter nonsense. A well trained dentist will utilize data derived from the instrumentation to orthopedically position the mandible in an optimal neuromuscular position relative to the cranium. He may not change vertical, as it may be an A-P discrepancy. The antagonist shows abuses of technique and never the successes. The diagnostic value for any instrument is as valid as the ability of the diagnostician to interpret the data. To use any instrument according to the manufacturers instruction without clinical experience under the direction of an experienced clinician is inviting false conclusions. Can you imagine a radiologist using a magnetic resonance imager according to the manufacturers instructions without formal training? Of course not. The same criteria applies to the use of any biomedical electronic instrument. If the contributors had taken any formal courses, they would have known that the intensity of electrical stimulation is never increased until teeth tap together. On the contrary, intensity is increased slightly above threshold and the teeth should never tap together. These same contributors talk about "normal" subjects. How did they determine whether the subjects were normal? A lack of subjective symptoms? A class I canine and molar occlusion (angle classification)? If we have no objective data, how can we compare normal to abnormal? It's amazing how the contributors find such fault with those who use modern technology and base their conclusions on inadequate research. After all, clinical success is the final test.

James F. Garry, DDS
President of ICCMO

'Perhaps we may be allowed to differ'

We were happy to note that Drs. Lund, Lavigne et al. (It's My Opinion, Sept. 89 issue) have finally admitted that the electronic instruments referred to do what it is claimed that they do. As to the useful-

ness of these instruments in the diagnosis and treatment of craniomandibular dysfunction, they are, of course, entitled to their opinion; still, the general tone of the article suggests that the authors are not really familiar with either the instruments or the premises on which their use is based.

For this reason, we suggest that this article should not be regarded as informed opinion. As practitioners who have had a special interest in this area, one for twenty-five years, the other for eleven, and have used electronic instruments for the last ten, perhaps we may be allowed to differ.

First, obviously, it must be admitted that TMD can be treated successfully without the use of these instruments. Like many others, we did it for years, with an average rate of success; but for both of us the rate of success improved significantly when we began to use electronic diagnostic and therapeutic aids. Further, the cost to patients tended to go down, because in most cases less time was required to achieve the desired result.

This is not to say that there were no failures. Whatever human ingenuity can devise, human ingenuity can find a way to screw up. We do not claim exception to this rule. It seems likely that some of the authors have treated our failures, as we have treated some of theirs.

As to the postulates objected to by the authors, it is not quite true that they "have been shown to be incorrect". For example, they cite the article by Bisette and Quinlivan,¹ who used EMG studies to show that the TENS device² developed by Jankelson et al. did not in fact work through the nerves, but instead stimulated the Masseter directly. A later study³ showed this to be incorrect; yet it is still cited to discredit the instruments, even by those who know, or ought to know, about the second paper. Further, since the authors have already admitted that the instruments work as claimed, it is difficult to see why they refer to this article at all.

It must be admitted that some of the postulates referred to have not been tested as vigorously as one could wish. We depend on the Universities for this sort of testing, and they have not done it. For this reason those of us who use it have no choice but to judge by our own clinical experience and that of our colleagues.

The authors describe as "fatuous" the finding of Cooper and Rabuzzi⁴ that

many, if not most, asymptomatic individuals have occlusal abnormalities. Is this really more surprising than the fact that caries free persons harbor strep. mutans, or that all those whose mouths contain Vincent's group of organisms do not suffer from ANUG? The fact that many patients function well from what we call an adaptive holding position says nothing at all about whether the ideal rest position is that assumed when the muscles are at their resting length. If this is the basis on which the premise is challenged, then the matter clearly remains in the realm of opinion.

We would regard as fatuous the statement that "if kinesiographic and electromyographic findings cannot reliably distinguish between symptomatic and asymptomatic groups, it is difficult to see how they are useful in diagnosis". They are not used to make this distinction. They are used to study symptomatic patients. As far as the comparison with the electrocardiograph is concerned, it should be noted that not all patients with abnormal ECG's have symptoms, but this is not taken as evidence that the ECG is useless.

Equally fatuous is the implication that those who use electronic aids do not take histories or perform physical examination. These tools, like radiographs, are adjunctive to, not in place of normal diagnostic procedures. Further, the description of the treatment approach is both oversimplified and inaccurate. One would think that gentlemen with the academic standing of this group would at least show some familiarity with what they criticize.

Finally, though the authors condescendingly refer to "unproven or incorrect assumptions", they do not share their wisdom with the readers. If they know that the assumptions (more correctly referred to as "postulates" elsewhere in the paper) are incorrect, in what does the error consist? Specifically, if physiologic rest position is not the position assumed when the muscles are at rest, where is it? What is their definition? "Several millimetres away" is not good enough.

Again, what evidence is there that "the two positions (the neuromuscularly relaxed position and centric occlusion) are different in normal subjects"? We have already noted that the absence of symptoms of TMD can not be taken as proof that the occlusion is normal, but merely that it is asymptomatic. This could simply mean that the adaptive capacity of

the musculature is capable of accommodating the existing degree of abnormality.

The final fatuity is the comment that "there is normally activity in the jaw closing muscles at physiologic rest". Of course there is. Total absence of such activity occurs only in dead subjects.

Thus, in our opinion, the authors have not demonstrated sufficient familiarity with either the instrumentation or the premises on which their use is based to expect their opinion on this matter to be taken seriously.

*Ray Mulrooney, DDS, BScD, FICCMO,
Scarborough, Ont.*

*Stephen Alder, DDS, FICCMO,
North Battleford, Sask.*

'Use of Electronic Devices'

The opinion by Lund et al,¹ needs to be placed into some kind of perspective. Eleven professors of seven Canadian Faculties of Dentistry set out to discredit myotronics instrumentation by quoting certain research references as evidence. The reader is encouraged to peruse these references carefully and critically.

Regrettably, it is not possible to enter, here, into those publications in any depth but maybe a few pointers will serve to demonstrate that the "professors" opinion is difficult to leave unchallenged.

Dao et al, (1988)² and Bessette et al, (1973)³ are quoted as evidence that there is no basis for a "neuromuscular occlusal position" established by T.E.N.S. In essence, the papers state that T.E.N.S. induces the direct 'M' reflex and not the indirect 'H' reflex necessary to establish reflex occlusal position. Neither of these studies analyse the post 'M' compound action potential for the inclusion of the 'H' (myotatic) reflex. In the Feine et al, (1988)⁴ paper, doubt is raised that M.K.G. findings can reliably distinguish between symptomatic and asymptomatic patients. The study examines the M.K.G. data on 10 asymptomatic and seven symptomatic subjects, from which internal joint disorders were excluded. The basis for asymptomaticity is essentially based on the patient's subjective signs. No radiological assessment, etc., of joints or an in-depth occlusal analysis, etc., was apparently undertaken. One should not be surprised to find that the statistical analysis between the symptomatic and asymptomatic groups revealed no signifi-

cant difference. The review paper of Lund and Widmer (1988)⁵ is, also, provided as evidence that E.M.G. cannot be used to distinguish the symptomatic from the asymptomatic dysfunctional patient. Similarly, the research of Rugh and Drago, (1981)⁶ begins from the assumption that normal asymptomatic patients are necessarily physiologically non-dysfunctional. But in these studies, there is no evidence of a careful analysis of the occlusion, supporting tissues of the teeth or state of the T.M.J. having been undertaken. The absence of joint sounds is not indicative of a healthy T.M.J. Nor is the absence of Angle's type malocclusion, evidence that occlusal interferences are not present. In short, the quoted researches are inconclusive.

The professors' treatment of literature written in defence of myotronics instrumentation is perfunctory and unconvincing, to say the least. The findings of one supportive paper [Cooper & Rabuzzi (1984)]⁷ are derided as "fatuous" because the authors found that "81 per cent of symptomless adults" were found to be dysfunctional. And because, in another study (unreferenced), Cooper found "an almost universal existence of various degrees of muscle accommodation and sustained tension".

Why Lund et al, (1989), should take issue with these observations is difficult to reconcile with the findings of Lund and Widmer (1988), that masticatory muscle is active at the resting posture of the mandible.

Throughout the opinion of the professors, there is the pervading and erroneous notion that asymptomaticity is equatable with health or for that matter, that the dysfunctional state is not normal. And thereby hangs a tale.

Reflect for a moment on the ubiquitous incidence in the general population of dental malocclusion, periodontal disease, temporo-mandibular joint pathology and occlusal dysharmony, any of which are known to alter masticatory muscle activity. Does not the figure of 81 per cent for dysfunction in the general population appear to be a conservative estimate on which to base a preventive program? Yet, the professors object to this approach, stating that the neuromuscular rest position does not coincide with the clinical rest position in "healthy" people.

Again, we ask by what criteria are the patients regarded as healthy? Furthermore, "neuromuscular rest" is that position where masticatory musculature is

involuntarily maximally relaxed and balanced (minimal and balanced E.M.G.), not that point where the mandible is voluntarily opened to provide least masticatory activity (least E.M.G.).

In general, preventive medicine has allowed the medical/dental professions to observe and modify disease processes prior to their clinically recognized and symptomatic inception. Testing for blood sugar, uric acid and cholesterol, was once the province of laboratory research. Now, the finding of elevated blood levels of sugar, serum uric acid and cholesterol in routine analysis of "asymptomatic" patients has provided the opportunity to prevent or, at least, to retard the development of irreversible symptomatic pathology.

Finally, does Lund et al, (1989) expect us to believe that electronic devices that

are "valuable aids to basic and clinical research" cannot, also, be useful in the diagnosis and treatment of T.M.D. We submit that patients have a right to expect sound diagnosis, based on thorough clinical examination, assisted by whatever auxiliary aids are necessary to achieve that end.

For those who successfully utilize Kinesiography/E.M.G./T.E.N.S. in the diagnosis and treatment of mandibular dysfunction, it is anticipated, given their high success rate (Cooper et al, 1986)⁸ that it will appear to them unethical to use conventional approaches that are less successful.

Martyn R. Thomas, BSc, BDS, FICCMO
Norman R. Thomas, BDS, BSc, PhD,
FRCD(C), Dip. Oral Pathology, FICCMO,
Professor Emeritus, University of Alberta.

Original authors respond to all of the letters

Several major points were raised by more than one writer, so we will reply to all of the letters by addressing these issues in the order that they were raised by Dr. Garry:

I. Our competence was questioned by all authors. This is the standard tactic of shooting the messenger if you do not like the message. Despite what they infer, daily clinical experience is of little help in the evaluation of laboratory tests and data from clinical trials. However, more than half of the authors of the Opinion statement do treat Temporomandibular (TM) Disorders, as well as write and lecture on the subject. In addition, several members of the group have used the techniques in question in the clinic and in the laboratory for many years. All have had several years of postgraduate training.

II. When new methods of diagnosis are evaluated, four major factors must be considered — the sensitivity, specificity, reliability and reproducibility of the measures. To be efficacious, the tests must be specific: that is, they must not falsely identify asymptomatic control subjects as abnormal. Although Dr. Garry states that "most patients have a neuromuscular dysfunction and every patient has some degree of accommodation and tension," this is not a fact; it is simply a false conclusion based on an unwillingness to reject invalid tests.

Drs. Mulrooney and Alder ask why one should be surprised by the findings of Cooper and Rabuzzi "that many, if not

most, asymptomatic individuals have occlusal abnormalities." We are surprised because neither we nor Cooper and Rabuzzi referred to malocclusion. Cooper and Rabuzzi concluded that: "The presence of muscle dysfunction in the majority (81 per cent) of such clinically asymptomatic people was shown." Drs. Mulrooney and Alder are confusing malocclusion and neuromuscular dysfunction — the two are not synonymous, even if they would like us to believe that they are.

III. We were taken to task for falsely inferring that the users of these electronic devices consider them to be superior to the physical examination. We were careful to quote the ICCMO Resolution in our paper, and do not understand how else it can be interpreted. In fact, the final paragraph in the letter from Drs. M.R. and N.R. Thomas calls conventional approaches to diagnosis and treatment "unethical".

IV. Dr. Garry contradicts the ICCMO Resolution a second time when he writes that electronic instruments are not used to differentiate between symptomatic and asymptomatic patients. The ICCMO statement that electronic diagnosis is "The only truly objective means of such diagnosis, treatment and validation for conditions involving muscular skeletal dysfunction. . ." is unequivocal.

V. We were also taken to task for not giving all of the evidence, but this was not possible in a short expression of Opinion. The points raised about electrical stimulation and rest position are all

dealt with in the articles that we cited and in our replies to another organized letter campaign⁸. To reiterate, the Myo-monitor causes jaw closure by a direct action on the superficial masseter muscle, and secondly, the postural position of the mandible (the clinical rest position) does *not* correspond to "neuromuscular rest" position in asymptomatic subjects. Why then use electrical stimulation to establish unnatural "rest" positions and "myo-centric" occlusal positions? Arguments that patients without symptoms might not really be asymptomatic, are really sick or likely to become so in the future are merely attempts to confuse the issue and to avoid having to answer this question.

Dr. Garry also asks how normality can be defined, and how normal and abnormal populations can be compared. In fact, it is not necessary to define normality to test instruments such as these. What is needed are comparisons of data from sub-

jects with the symptoms of TM Disorders and from properly selected asymptomatic controls. These data cannot be replaced by claims of clinical success (such as those by Drs. Mulrooney and Alder), because there is a high rate of spontaneous remission, a strong placebo effect and high success rates claimed for a wide variety of treatments.^{1,2,3,4,5,7,9,10}

VI. In their letter, Drs. Mulrooney and Alder admit that "some of the postulates . . . have not been tested as rigorously as one could wish." However, in spite of this knowledge, they persist in using these devices on their patients. In addition, Drs. Mulrooney and Alder assert that this testing is the responsibility of the Universities. **In our opinion, it is the companies who produce and market these devices and those who advocate their use who should establish the safety and efficacy of the product.** In the face of such denials of the responsibility, perhaps it is time to suggest that

devices be subjected to the same screening processes that govern the distribution of pharmaceutical products.

Furthermore, we remind Drs. Mulrooney and Alder that when these devices are tested in the Universities (see refs in 6), the companies that make them and members of allied organizations reject the results. Instead of financing well-controlled clinical trials to document their claims, the manufacturers and their allies use heavy-handed pressure tactics in attempts to prevent open discussion and to stop publication of studies that they do not like. Actions such as these are not indicative of a sincere interest in protecting practitioners and the patients that they treat.

J.P. Lund, BDS, PhD

J.S. Feine, DDS, MSc

G.J. Lavigne, DMD, MSc, Cert. Oral Med.

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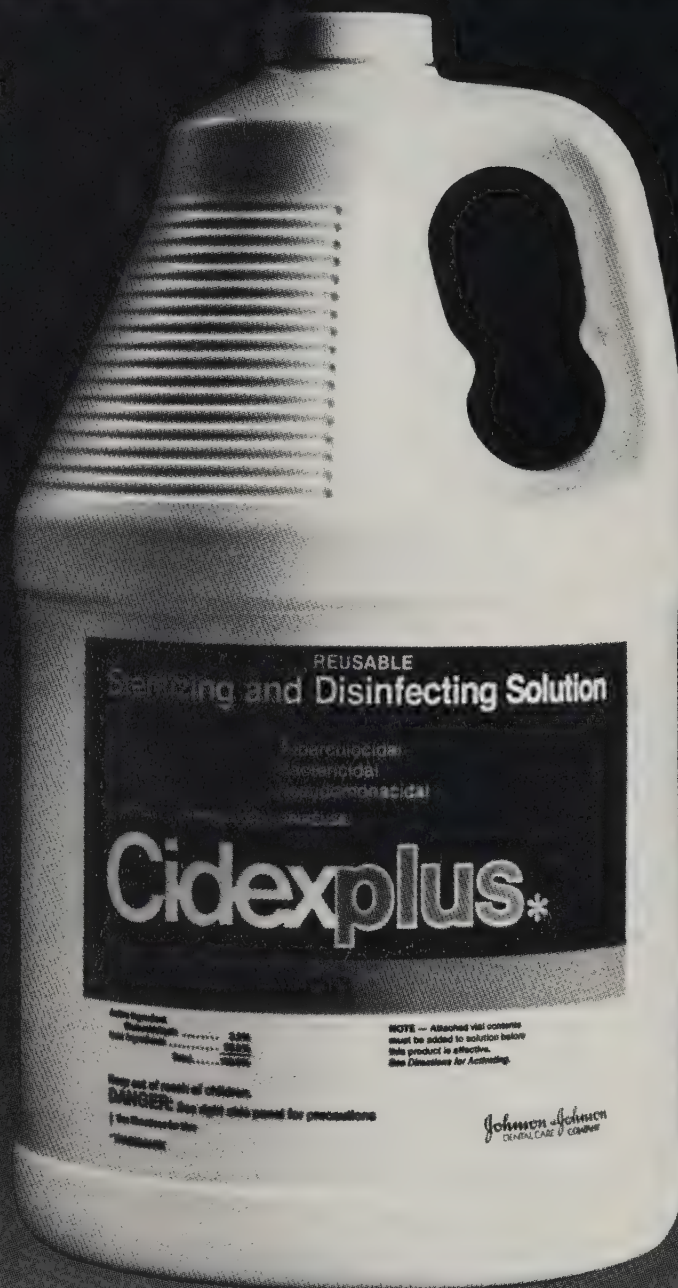
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References

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4. Kobayashi, H. et al (1984). Susceptibility of Hepatitis B Virus to Disinfectants or Heat. J. of Clin. Micro. 20, 214-216.
5. Klein, M. and Deforest, A (1963). The Inactivation of Viruses by Germicides. Paper presented at meeting of Chemical Specialities Manufacturers Assoc., May, Chicago.

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DENTAL PRODUCTS DIVISION

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CDSPI — It's Been Thirty Years!

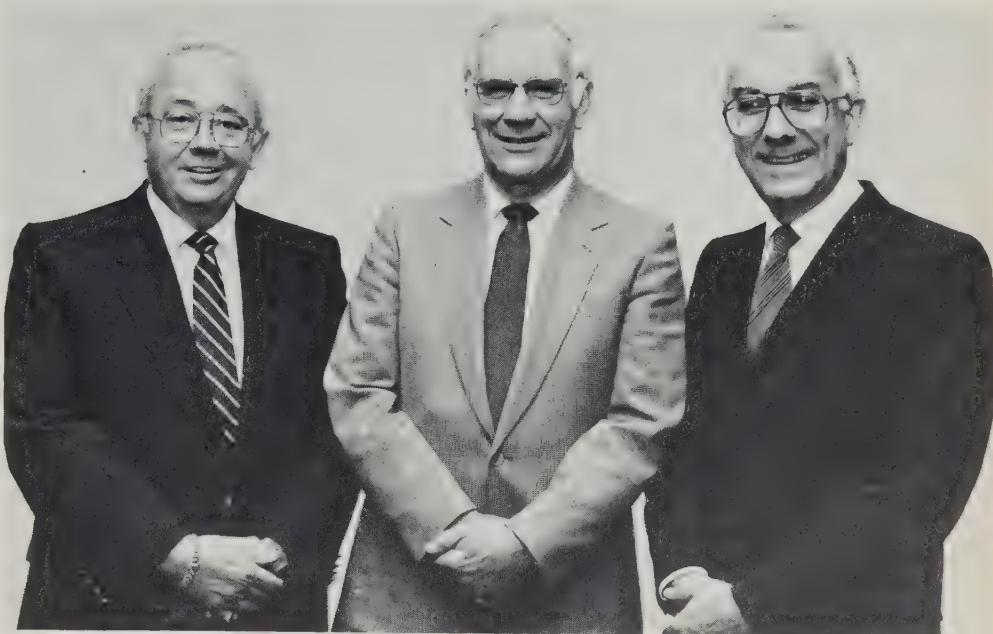
For the past 30 years, CDSPI has been providing an ever-expanding program of service to the Canadian dental profession. Today services span the administration of the Canadian Dentists' Insurance Program (CDIP), retirement savings plans, extended health care programs, retirement counselling seminars, as well as a computer package for dental office management system (DOMS).

In the early years there were no comprehensive national and provincial insurance plans. It was not until January 1989 that a Federal charter was granted to the Canadian Dental Service Plans Inc. (CDSPI) "to operate a service agency capable of extending a complete consulting and accounting service to the dental profession and to its legally incorporated bodies on a non-profit basis".

Accounting and Administrative Expertise

CDSPI was soon recognized for its accounting and administrative expertise, and during the 1960s it performed numerous services for the dental profession. A significant portion of its activities was concerned with the flourishing dental welfare plan in Ontario. This function was eventually turned over to the ODA in the early 1970s. In 1961 CDSPI collected insurance premiums on behalf of the RCDS for their newly amalgamated group insurance programs and provided some administrative services for the ODA and the *Toronto Academy of Dentistry*. CDSPI also successfully administered a number of municipal dental welfare programs until they were eventually amalgamated with the larger provincial plan.

As the 1970s approached, changes in organized dentistry at the Federal and provincial levels brought new responsibilities and challenges to CDSPI. The CDA and ODA group insurance plans began to grow in size and strength, and in the late 1960s it became apparent the rising competition between them for participants was not beneficial to the profession. In 1968 an Ad Hoc Committee was formed to resolve the competition dilemma.



The original CDSPI Management Committee. From the left, they are: Dr. Rod L. Moran, (a past-president of the CDA), Secretary-Treasurer; Dr. John E. Durran, first CDSPI President, and Dr. Mel. Charendoff, Committee member.

"National/Provincial Insurance Program"

On October 1, 1969 the efforts of this Committee produced one amalgamated plan under the name "National/Provincial Insurance Program". This program was controlled by the CDA Council on Insurance and Investment and was administered by CDSPI. At the same time, CDSPI was also asked to take over the administration of the CDA Retirement Savings Plan.

CDSPI was to enter the 1970s as a national focal point for Canadian dentists on insurance and RSP requirements. It had fully activated its national charter and had grown from a local collector of premiums to a truly national service organization for the dental profession.

CDA Council on Insurance and Investment

It was also during the 1970s that CDSPI began to take a more active role in designing insurance programs. In late 1971 the CDA Council on Insurance and Investment authorized CDSPI to begin investigating proposals and negotiating

with insurers on their behalf. All recommendations were to be referred to the CDA Board of Governors for final approval. Since then, CDSPI has acted in the capacity of the CDA Council on Insurance and Investment.

Management Committee

Expanded responsibilities required CDSPI to consolidate its management capabilities. In 1975 a three-person management committee was elected by the CDSPI Board of Directors to oversee daily operations. Elected were Dr. John E. Durran of Hamilton (President), Dr. Rod L. Moran of Toronto (Secretary/Treasurer), and Dr. Melvin D. Charendoff, also of Toronto.

Also in 1975 a joint CDA/CDSPI Ad Hoc Committee was formed to review the national/provincial plans and investment program.

Its goal was to increase the services and benefits to dentists while at the same time reducing the cost of administration.

A result of the Committee's report was a new set of bylaws for CDSPI including a restructuring of the Board of Directors.

Canadian Dentists' Insurance Program: "CDIP"

With new directions for the Board of Directors and Management Committee a decision was made in 1977 to look at shifting the administration from the insurance companies and more under the control of the profession. There was a complete retendering of the insurance programs and when new contracts were drawn up, to take effect January 1, 1978, the National/Provincial program was changed and renamed "The Canadian Dentists' Insurance Program (CDIP)". At this time 80.4 per cent of all eligible dentists were enrolled in one or more of the plans.

A new General Manager, Mr. Kingsley Butler, was hired in 1981 and he was to be responsible for bringing all the administration and marketing of the programs in-house. Larger offices were required to accommodate increased staff, and sophisticated computer facilities were developed. By 1983 full administration of all plans was consolidated under CDSPI. Staff had increased from eight full-time employees in 1978 to 23.

Retirement Counselling

The CDS-RSP responsibility was moved to a new investment manager and CDSPI began to offer its services to a number of provincial associations and to assist in the administration of extended health care programs. As a result of two surveys, it was evident the profession wanted CDSPI to expand its mandate to include both retirement counselling seminars and individual one-on-one retirement counselling. A computerized dental office management system (DOMS) was also added to the services provided by CDSPI.

Nine Voting Representatives

In 1985 a review was made of provincial representation on CDSPI's Board of Directors. A bylaw change in 1986 incorporated several changes to improve communications between the provincial and national bodies. The restructuring brought the Board of Directors to nine voting representatives: one vote each for British Columbia, Alberta, Quebec; two votes each for Ontario and the CDA; one vote between Manitoba and Saskatchewan, and one vote for the Atlantic Provinces. Four Observers representing Manitoba, Saskatchewan and the Atlantic Provinces were approved to attend Board Meetings.



Dr. James N. Wright

First "apprentice candidate" Management Committee

In 1988 the Board of Directors approved a management consultant's study recommending the management process in general, and specifically the structure, responsibilities, duties and succession of the Management Committee. A formula was accepted which set out a time frame for bringing an "apprentice" member on to the Management Committee for one year. Following this, one member of the Management Committee would retire and the apprentice would move into a regular voting position. The cycle would be repeated over a period of six years until the Management Committee would be changed but essential continuity would be constantly maintained.

Dr. James N. Wright

Upon recommendation of a selection committee, Dr. James N. Wright of Winnipeg was approved by the CDSPI Board of Directors to be the Management Committee's first apprentice candidate. He assumed his new position on January 1, 1990.

Dr. Wright has had extensive service with the Canadian Dental Association. He served as a member of the CDA Board of Governors; was an Executive Council member, chairman of the Committee on Salaried Dentists and is current chairman of the Committee on Dental Specialties. He has represented the CDA on the CDSPI Board of Directors since 1984. He had a distinguished career with the Canadian Forces Dental Services, ultimately as Director General of Dental Services.

Dr. Wright currently is Head of the Department of Stomatology in the Faculty of Dentistry, University of Manitoba.

CDSPI has indeed grown over thirty years. Many changes have taken place. CDSPI confidently enters into the last decade of the 1990s with a continuing mission to be the dentists' one-stop-shopping company for insurance, retirement and dental office management automation needs. Δ

Obituaries/Nécrologie

Boniuk, Mitchell: A native of Glace Bay, Nova Scotia, Dr. Boniuk graduated from Dalhousie University dental school in 1953. He conducted a practice in Toronto.

Beaulieu, Jean: Diplômé de la Faculté de médecine dentaire de l'Université de Montréal en 1985, le Dr Beaulieu exerçait sa profession à Chateauguay, Québec.

Buckley, H.A.: Dr. Buckley was a graduate of the University of Toronto in 1955. He practised dentistry in Ottawa.

Chambers, John A.: Graduated in 1925 from North Pacific University. He conducted a dental practice in New Westminster, British Columbia. A past-president of the Vancouver and District Dental Society, Dr. Chambers was a Life Member of the Canadian Dental Association.

Cooper, C.R.: Dr. Cooper was a graduate of the Faculty of Dentistry, University of Toronto, in 1969. He conducted a dental practice in downtown Ottawa.

Hunter, Bryant Holmes: Dr. Hunter was a graduate in dentistry from the University of Toronto in 1961. Earlier, he had obtained a BA from the University of British Columbia. He practised dentistry in Richmond, British Columbia for 27 years.

Smith, N.C.: A graduate in dentistry from the Royal College of Dentists of Canada in 1925, Dr. Smith conducted a general practice in dentistry in Markdale, Ontario. He was a Life Member of the Canadian Dental Association.

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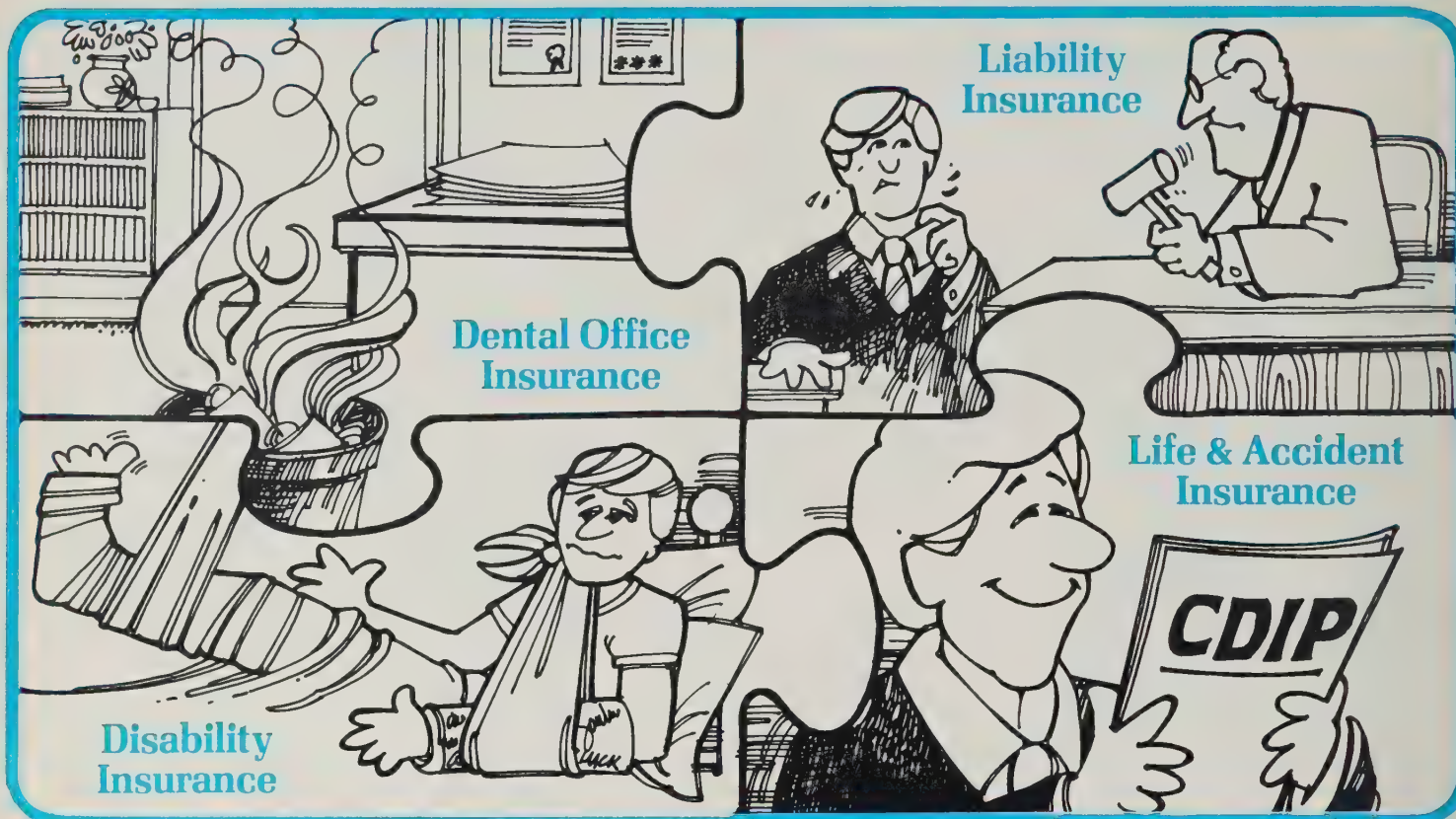
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* P.S. The Upper Left Central is the Willi Glas Tooth.

(1) The Willi Glas Crown: A New Solution in the Dark and Shadowed Zones of Esthetic Porcelain Restorations, Willi Geller Z.T.M. and Stephen J. Kwiatkowski, D.D.S., Quintessence of Dental Technology, Vol. 11, No. 4, July/Aug. 1987.

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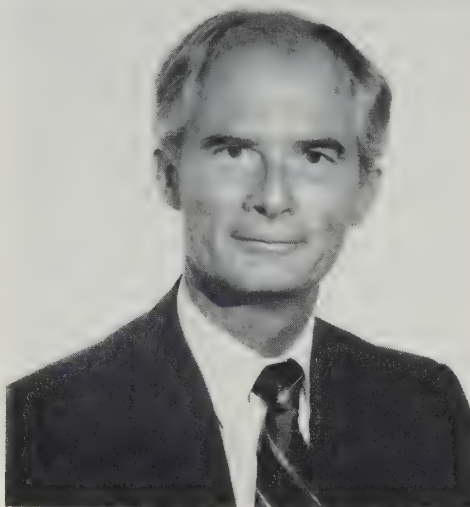
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The Canadian Dentists' Insurance Program is owned and operated by the CDA and the provincial dental associations and administered by CDSPI.

This material has been approved by our consultants/brokers and insurers.

Taxes and the sale of your practice

Ron M. MacKenzie, BComm, CA
Vancouver, B.C.



Ron MacKenzie, BComm, CA

If you are contemplating selling your dental practice, you should be aware of two recent new tax planning techniques which could save you significant tax dollars. The first tax planning technique relates to the sale of the goodwill component of your practice. Under certain conditions, a portion of the selling price allocated to goodwill could be received tax-free. The second tax planning technique relates to the relatively recent situation regarding the sale of the shares of an incorporated dental practice. Since many dentists in British Columbia have incorporated their practices, it is now quite common for the sale of a dental practice to take place by way of a disposition of shares as opposed to depreciable assets. The tax savings can be significant.

Goodwill

Prior to 1988, the sale of goodwill ("Eligible Capital Expenditure" — ECE) was credited to the Cumulative Eligible Capital (CEC) account. The net effect was to include a portion of the goodwill proceeds in ordinary income. The amount to be included was initially 50 per cent of the goodwill allocation. The remaining half was essentially tax-free. Commencing with 1988, 75 per cent was credited to CEC and 25 per cent was tax-free.

Prior to 1988, a disposition of goodwill did not come within the guidelines for the capital gains rules, including the exemptions. However, commencing in 1988, a significant amendment to Subsection 14(1) resulted in capital gains treatment for the credit to the CEC account. In essence, a disposition of goodwill now qualifies for capital gains treatment and, in the majority of cases, the capital gains exemption rules for the taxpayer. Certain limitations apply which primarily relate to situations where a practitioner would have purchased goodwill on an arm's-length basis in the past, and has claimed amortization of that goodwill. The amount of amortization claimed in the past will reduce the amount available for capital gains treatment.

However, in the majority of cases relating to my clients, I find that few have purchased arm's-length goodwill in the past, and therefore can take full advantage of the capital gains treatment and capital gains exemption rules.

Currently, the Income Tax Act requires that 75 per cent of the amount allocated

to goodwill upon the disposition of a dental practice, be credited to the ECE account. This credit of 75 per cent would normally qualify for capital gains treatment along with the resulting exemption. The 75 per cent amount is the taxable capital gain.

There are certain restrictions relating to the capital gains exemption rules. Originally, the Minister of Finance introduced rules in 1985 which would have increased the exemption to \$500,000 over time. The exemption is only available to individuals. The 1987 level was frozen at \$100,000 except for gains on dispositions of qualified farm property and qualified small business corporation shares to which a maximum exemption of \$500,000 continues to apply. I will review the potential advantages to selling shares of a practice later in this article.

The total exemption is cumulative and is presently at \$100,000. If goodwill of \$100,000 was sold, the taxable capital gain would be \$75,000 and should qualify for the capital gains exemption rules in total. However, the amount of the exemption could be reduced by prior claims, and/or a new account called a "Cumulative Net Investment Loss" (CNIL). The CNIL represents the total of investment expenses, including certain tax shelter deductions, to the extent that this exceeds the taxpayer's investment income.

The CNIL calculation is made on a cumulative basis starting in 1988. One way to reduce the impact of the CNIL is to ensure that as much investment income

as possible is received by the taxpayer. This can include dividends received from companies controlled by the taxpayer.

The capital gains treatment is calculated only on a calendar year basis, not your fiscal year. If your practice year end is 31st January, 1989, and the sale takes place on 30th September, 1989, the capital gain would be recognized for tax purposes in calendar 1989, and included in your 1989 personal income tax return. However, the accounting transaction would be reflected on your 31st January, 1990 financial statements.

Some good news

In summary, the good news is that the sale of goodwill as part of the disposition proceeds of the sale of an unincorporated dental practice should generally qualify for capital gains treatment along with the accompanying capital gains exemption rules. This will result in the majority of the goodwill proceeds being received tax-free. Again, certain limitations could apply.

For example, if the practice sale was:

Furniture and Fixtures	\$ 10,000
Leasehold Improvements	15,000
Supplies	1,000
Goodwill	125,000
Total	\$ 151,000
Goodwill Allocation	\$ 125,000
Less Previously Purchased Goodwill	(-)
	\$ 125,000
Less Capital Gains Exemption ¹	(100,000)
Net Capital Gain	\$ 25,000
Taxable Capital Gain (75% of \$25,000)	\$ 18,750
Income Tax Effect at Top Marginal Tax Rate (1989) (45.53% × \$ 18,750)	\$ 8,537

¹ Assumes nil "CNIL" account, no previous exemptions claimed and no allowable capital losses.

² Additional taxes due on sale of other practice assets.

Shares disposition

For a number of years now, the College of Dental Surgeons of British Columbia has permitted its members to incorporate

their dental practices. Interpretation Bulletin IT-189R (*Corporations Used by Practicing Members of A Profession*), issued by the Department of National Revenue, sets out the guidelines. It should be carefully reviewed by interested parties. It is not within the scope of this article to comment on the advantages and disadvantages of incorporating dental practices, except that recent federal and provincial tax legislation could create a small disadvantage to incorporation when all of the funds received by the incorporated practice are paid out within the same taxation year to the principals.

As mentioned earlier in this article, the capital gains exemption maximum was frozen in 1987 at \$100,000, except for gains on dispositions of qualified small business corporation shares which continues with a maximum capital gain exemption of \$500,000. The shares of a properly incorporated and operated dental practice should qualify as small business corporation shares as defined by current legislation. The definition of a "small business corporation" is essentially a Canadian-controlled private corporation with substantially all of the assets either used in an active business carried on primarily in Canada by the corporation, or by a related corporation. Thus, the sale of an incorporated dental practice may result in a tax-free disposition through the use of the \$500,000 capital gains exemption. However, certain conditions must exist.

The shares of the corporation must have been held for at least the previous 24 months. This would appear to block recently incorporated practices, or practices that wish to incorporate to take advantage of this rule, from taking place. However, there is a provision within the Income Tax Act that would deem the shares of a corporation to have been in existence for the required 24 months, if, at the time of incorporation, substantially all of the assets are transferred into the newly incorporated company by the shareholder.

Accordingly, it is possible to incorporate a dental practice prior to the sale if a share sale is preferable to an asset sale. Careful planning and document preparation is obviously in order. The tax savings however could be significant.

In an earlier article in the Journal of the Canadian Dental Association, I discussed the tax considerations at the time of purchasing/selling a dental practice. Clearly, the purchaser wishes to buy assets which

will result in a greater write-off for tax purposes (depreciation/capital cost allowance). When the purchaser purchases shares, there are no depreciable assets available for write-off. Therefore, the purchaser would normally expect to pay less for the shares of a dental practice than the depreciable assets including furniture and equipment, leasehold improvements, and goodwill. However, there is a "tax shield" calculation which is widely recognized as being appropriate in the circumstances. It calculates the present value loss to the purchaser of not purchasing depreciable assets with the ensuing write-offs over time. The calculation is applied to each depreciable asset class as follows:

$$\begin{array}{rcl} \text{Capital Cost} & & \text{Capital Cost} \\ \times & & \times \\ \text{Small Business} & & \text{Allowance Rate} \\ \text{Corpn. Tax Rate} & & \text{for the Class} \end{array}$$

$$\text{Discount Rate} + \text{Capital Cost Allowance Rate for the Class}$$

The only subjective figure is the present value or discount rate. The result of the calculation, as applied to each of the depreciable classes, will be to reflect the

reduction from the selling price of the practice if the assets are sold, to the selling price of the shares of the same practice only now incorporated. It has been my experience with my clients that, in most cases, it is most advantageous to sell the shares of an incorporated practice for a lesser amount than the depreciable assets for a greater amount. Each individual's status must be carefully reviewed and an appropriate course of action determined.

The sale of a dental practice can be a very emotional event whether the practitioner is retiring, or continuing his or her career in some other capacity or location. At the same time, it can be a richly rewarding event as the culmination of past efforts is being realized. As in most significant events in our professional careers, careful attention must be paid to tax and financial considerations. Δ

Mr. MacKenzie is a Chartered Accountant, and a partner in the C.A. firm of Rolfe, Benson, Vancouver. His preferred area of practice is within the medical and dental professions. He is also a frequent contributor to various professional journals.

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Salaries are modest but cover overseas living costs, and there is a benefits package. To apply, send your résumé to:

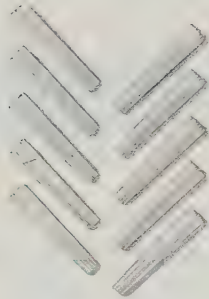
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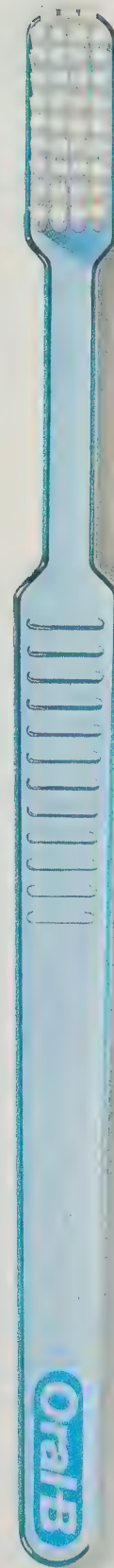


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But they're not defenseless.

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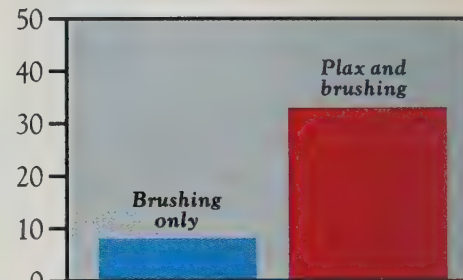
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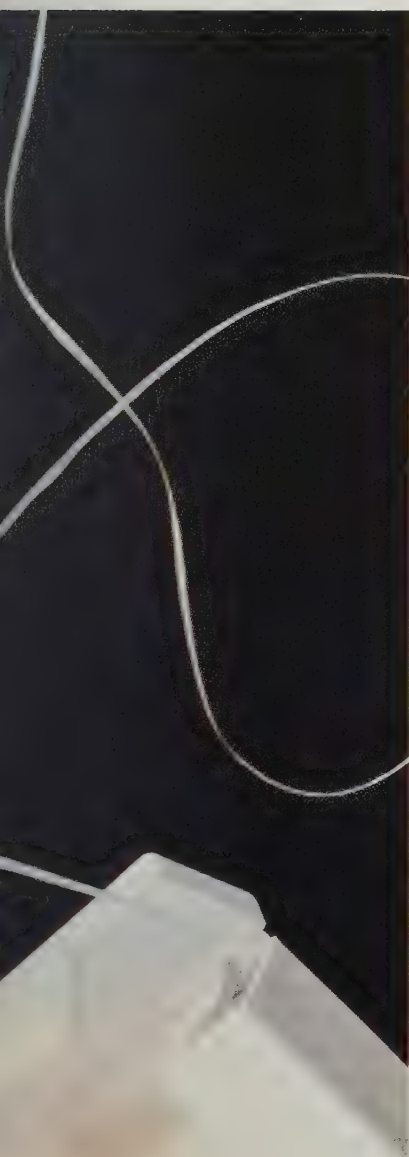
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References: 1. Emling RC, Yankell SL. Comp Contin Ed 1985;6:637-645. 2. Independent Market Survey, April 1989.

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The Dental Laboratory and You

New Prosthesis Eliminates Gingival Esthetic Problems

Esthetics. No single term has so influenced modern dentistry over the past two decades. The search for improved esthetics, fueled by patient demand, has led to a myriad of new products and procedures. Veneers, Inlays/Onlays, Dicor, Willi Glas Crowns, All-Porcelain Bridges, the list goes on and on.

Yet, certain problems remain. With bridgework (and in particular, with implant cases), a debate has raged for some time over whether the patient is better served by a "hygienic" or an "esthetic" bridge. Other areas of dentistry have also felt esthetic pressure. Consider the case of the patient who, after receiving much needed periodontal treatment, has experienced severe resorption.

Now, there is a unique solution available for gingival esthetic problems. A solution that can be used with natural dentition, crown and bridge, even implant cases.

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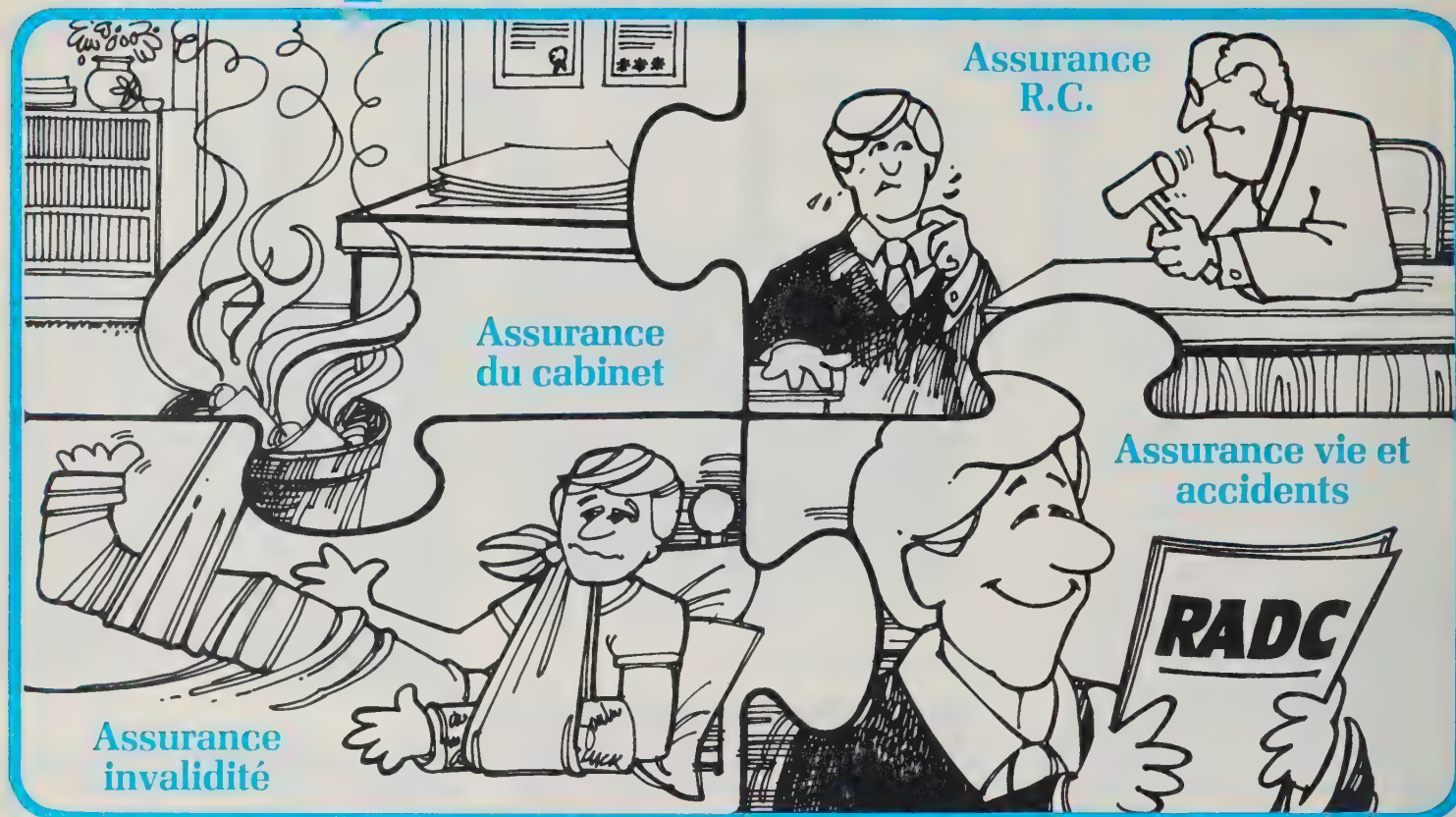
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Mr. H.J. (Hyo) Maier, RDT, is President of Aurum Ceramic/Classic Dental Laboratories Ltd.

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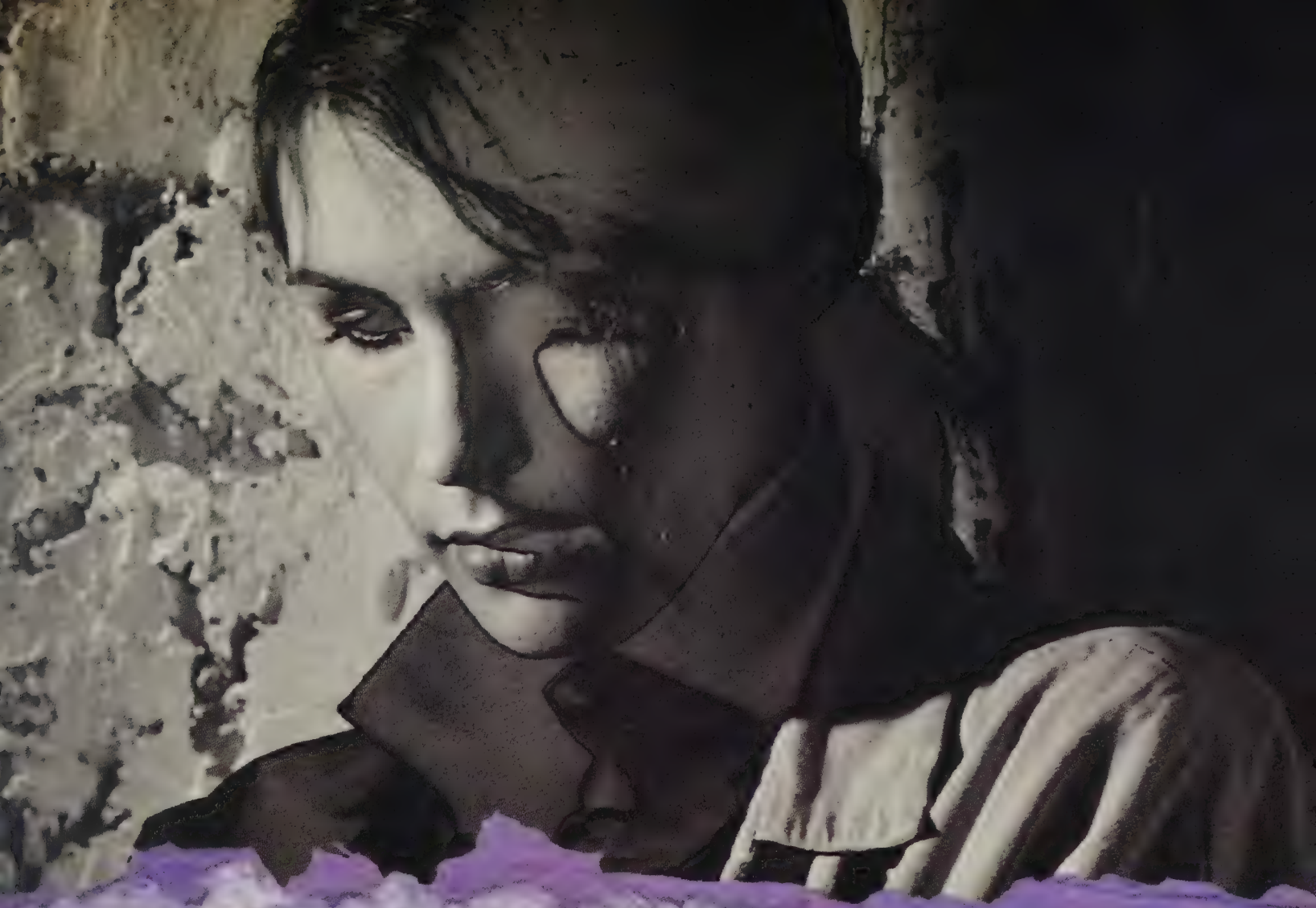
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FACE FACTS...

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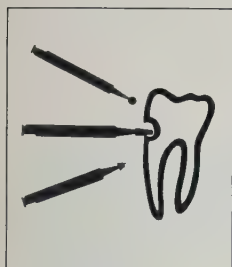
IS COMING



CORE-VENT®
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The Birth of the Bur (And How a Canadian Changed It All!)

P. Ralph Crawford, BA, DMD



Like many day-to-day commodities, the dental bur is taken for granted. Given scant attention until too dull to perform well the spent bur is discarded and casually replaced

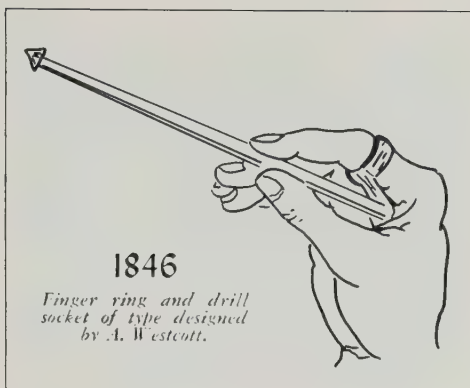
with another.

Have dentists ever considered the consequence if dental burs ceased to exist tomorrow? The answer is simple; dentistry as known today would slowly "grind" to a halt. The dental world would stumble back into the dark ages. Fluoride and forceps would remain the only lines of defence against the ravages of dental disease.

There is no evidence that any one individual "invented" the first dental bur. Like numerous modern devices the bur evolved slowly until the 19th century of mechanization. The first primitive attempts at boring into tooth structure was accomplished by merely rotating a crude hand fashioned awl or pick. The bur advanced in design and efficiency as the means of rotating it became more sophisticated.

In 1846 Amos Westcott developed the drill-stock consisting of a finger ring and simple drill rotated between the thumb and forefinger.¹ This was followed by the inventions of John Lewis, J. Foster Flagg, Spencer, and Chevalier who developed a variety of simple geared drill similar in operation to a hand turned egg beater.

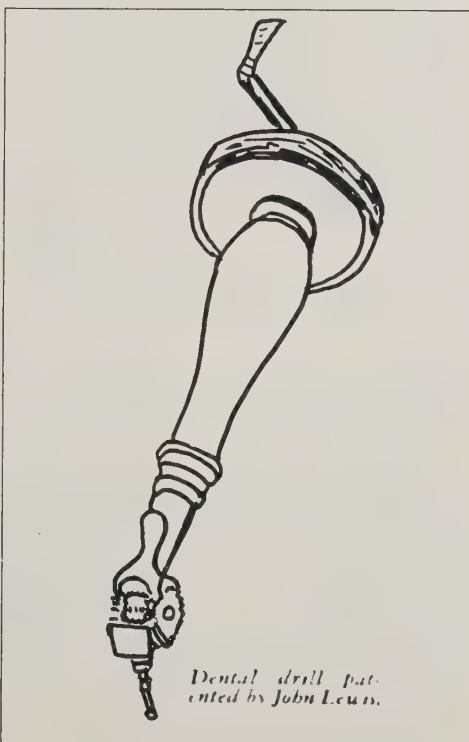
When James Morrison invented the foot treadle dental engine in 1871 and S.S. White's mechanic, George F. Green, developed the first electric dental drill shortly after, undoubtedly a much greater demand was created for an efficient bur. It is not known who made the first *modern* bur. It is assumed the entire process was by hand and very laborious. A small piece of steel was filed and ground into a specific shape; each tiny blade exquisitely hand sharpened to a razor edge.



Finger ring and drill stock, designed by A. Westcott 1846.

"The Revelation Bur"

S.S. White revolutionized and set the standard for years to come when that firm introduced the first machine-made bur in 1891. The company reported it took \$50,000 (a very large sum a hundred years ago), plus 12 years of experimentation to develop one of their company's greatest achievements. The S.S. White "Revelation Bur" was the first to



Geared dental drill developed by John Lewis mid-1850s.

have a continuous blade, or drill edge, across its centre. This enabled the bur to cut in the direction of its axis. No blade followed in the path of another; instead it cut across the path of its leader.²

For almost 40 years following the "Revelation Bur" Canadian dentists imported all their burs; 60 per cent from Germany, 25 per cent from Britain and 15 per cent from the United States. No burs were made in Canada. Chance and a world war intervened. They placed Canada in a leadership role of bur manufacturing.

George E. Beavers

In 1939 just before the outbreak of World War II a Brantford-born salesman and holder of a Bachelor of Commerce degree, George E. Beavers, then 43 years of age, decided to quit selling *Chiclets* and try his hand at industry. He acquired the *Challies Tooth Brush Company* (Canada's first toothbrush factory) located in Morrisburg, Ontario, 75 kilometers south of Ottawa.³

In September, 1939, Canada went to war. A government contract to supply toothbrushes for the Canadian Armed Services looked promising to the fledgling industrialist. Quickly however, George Beavers discovered ingenuity and inventiveness — characteristics which were to serve him well in the ensuing years — were prerequisites in a world where armed conflict created scarcities at every level. The *Challies'* brush had natural hog bristles imported from China which were hand-tied with silver wire to wooden handles. He met his government contract with success. Well, at least partial success. The story is told the *Challies Tooth Brush* wasn't all that great for oral prophylaxis but was one of the Canadian serviceman's best known aids for polishing buttons and cleaning boots!

A Bur Industry Is Born

As if struggling to keep the toothbrush contract viable wasn't enough, the Canadian government presented George Beavers with a new problem. Could he

supply the Services with dental burs? All imports had disappeared. Most other people, given the fact they knew absolutely nothing about dental burs, would have flatly refused. But not George Beavers. He sought the advice of American manufacturers, made countless inquiries, seeking some way in which to make a start. He eventually located some rusted bur-making machinery discarded by a failed Ogdensburg, New York, company and promptly hauled it home to Morrisburg.

Six months passed before Beavers could even find a toolmaker to turn out enough prototype burs for a demonstration for Ottawa officials. A government contract for three quarters of a million burs resulted and with a handful of unskilled workers, Beavers Dental Products Limited was born. Canada stood at the threshold of the world bur industry.

The Carbide Bur

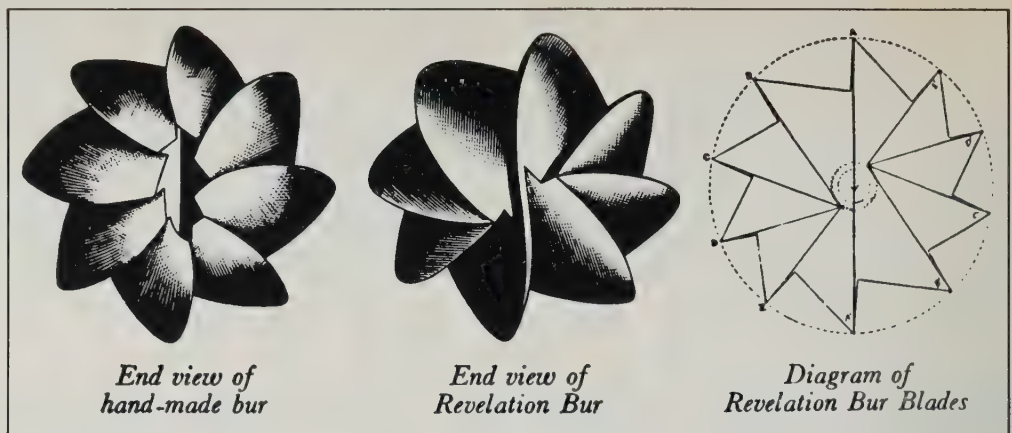
Stephen Leacock must have had George Beavers in mind when he said, "I am a great believer in luck, and I find the harder I work the more I have of it."

In 1946 following the cessation of hostilities, fate and chance again beckoned George Beavers. Allied Intelligence was sending teams of experts to war-ravished Germany to investigate technology and assist in Europe's rehabilitation. Awarded the rank of Honorary Lieutenant-Colonel by the Canadian government, George Beavers was asked to investigate the German bur industry.⁴

In Dusseldorf, the Ruhr's famous steel making city, Beavers met Rudolph Funke. He was at one time the world's largest manufacturer of dental burs. Rudolph Funke was also the man who in 1917, "accidentally" discovered the process of hardening steel with tungsten carbide. At the time he applied his tungsten carbide technique to the dental bur but had to wait for more than 40 years before a method was developed to rotate the bur fast enough to cut efficiently. In 1917 the dental world wasn't ready for "high-speed".

George Beavers knew it would require highly skilled individuals to create a modern bur industry. In September 1947 he persuaded Rudolph Funke, then 63 years of age, and two master craftsmen, to emigrate to Canada. Immediately they began to design and build automatic flute cutting machines in a new Morrisburg plant, nestled on the banks of the St. Lawrence River.

Creating a new business is never easy and always expensive. When his own



S.S. White "Revelation Bur" — first machine made bur, 1891. (From "A Century of Service to Dentistry". Published by The S.S. White Mfg. Co. 1944).

funds and all he could borrow ran out, Beavers applied to the newly formed Industrial Development Bank. He was the third person on record to be issued a loan from the new organization.

In those struggling days of the late 1940s there was an interesting example of how one industrialist helps another. Mr. Howard Harris, *President of Ash Temple Limited*, arranged financial support for George Beavers. To this day, *Ash Temple* has exclusivity in Canada for distribution of *Beavers Dental*. They are familiar to all Canadian dentists as the "Jet" bur. In the United States they are marketed under the name "Midwest".

In 1948 a local Morrisburg lad, Dalton H. Smith, joined the small group of artisans as an apprentice machinist. Today, 42 years later, Dalton Smith is Sales and Marketing Manager. He says, "In reality I am a Jack-of-all-trades and trouble shooter." Mr. Smith continues to demonstrate the perfection and enthusiasm required to maintain a foremost position in a highly competitive market. Fortunately for dentistry, the philosophy established by George Beavers, Rudolph Funke, Dalton Smith, and all who were to follow, was their hallmark. Even if automation could create millions of burs in a year rather than "mere thousands", a sustained quality product was a constant priority.



George Beavers, founder of Beavers Dental Products "He never stopped listening to dentists".

High Speed Dentistry

In its early years, even though the Morrisburg plant produced only steel burs, there was continuous research and development into carbides. By 1951 a machine capable of manufacturing carbides was designed and in 1952 the first carbide burs rolled off the assembly line. *Beavers Dental* produced its last steel bur in 1959.



Beavers Dental plant Morrisburg, Ontario "24 hours a day, seven days a week, 365 days a year".

A series of unrelated fortuitous events was to again intervene. In 1956-57 the building of the immense Seaway forced the factory to move back from the banks of the St. Lawrence. A new enlarged plant, still in Morrisburg, was erected in 1958. Relocations have a tendency to enhance enthusiasm and innovation. *Beavers Dental* geared-up for new challenges.

S.S. White, in 1957, introduced the *Borden Airtor* capable of 300,000 revolutions per minute. The air turbine dramatically changed the practice of dentistry. There was now a scramble to produce the intricate carbide bur capable of meeting the demands of previously unrealized speeds. George Beavers and his people were ready. Remember, it was Rudolph Funke who had invented tungsten carbide 40 years before!

"He Never Stopped Listening"

George Beavers had an amazing capacity to learn from others, and dentists recognized Beavers' willingness to listen to their problems. In the early days of high-speed dentistry, in the late 1950s and early 60s, dedicated dentists such as Dr. Miles Markley of Denver, Colorado, and Dr. W.R. (Bill) Scott, of Vancouver, conferred frequently with George Beavers. They were instrumental in developing specific bur shapes to meet the demands for new cavity outlines. The early steel burs had only four basic shapes; round, inverted cone, straight fissure and tapered fissure. Today bur companies manufacture hundreds of shapes and sizes to accommodate the intricacies of modern dentistry.

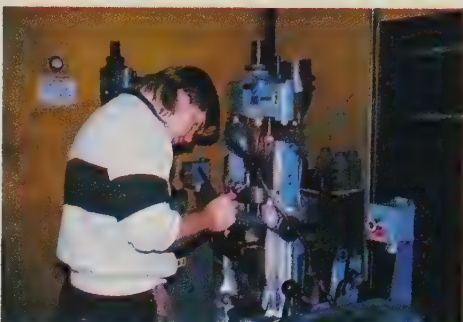
In the 1960s and early 1970s when the new plastic and composite materials came onto the market, George Beavers sought the advice of dental materials specialists such as Dr. Richard Roydhouse of Vancouver and Dr. Leonard Johnson from the University of Western Ontario in London, Ontario. He knew his company's survival depended upon meeting the demands of not only practicing dentists but also by satisfying the specific requirements of the dental schools.

When the new Faculty of Dentistry opened at the University of Western Ontario in 1967 it was George Beavers who advised and consulted on bur types and designs for student clinical kits.

"We found it increasingly difficult and inconvenient to deal with American firms", said Dr. Walter Teteruck of Western's Fixed Prosthodontic Department, "We weren't quite certain what it was we needed. Sending samples back and forth across the border or abroad



Dalton Smith, Sales and Marketing Manager
"In reality, I'm a Jack-of-all trades and trouble shooter".



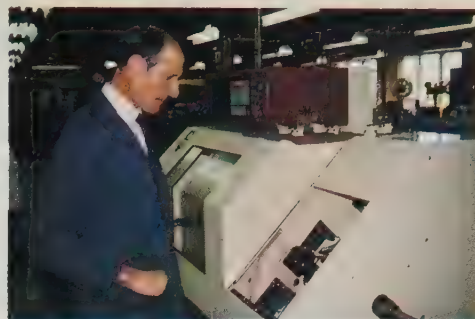
Dwayne Hummel pressing carbide "pills" from a mixture of British Columbia tungsten and high grade cobalt.

was unwieldy. Also the problems with exchange were frustrating. Then we discovered there was a Canadian bur company in our own back yard that was more than willing to assist."

Dr. W.R. Scott extolled highly the virtues of George Beavers. Dr. Scott is himself a legend in Canadian restorative dentistry. Graduating from Dalhousie University in 1938, he has conducted a very active prosthodontic practice in Vancouver for many years. He presented numerous clinics around the world, demonstrating and explaining the role of carbide design in restorative dentistry. At an age when most other dentists would have thought of retiring, Dr. Scott opened an ultra modern practice-suite in a Vancouver highrise.

Dr. Scott is still experimenting with new burs. Queried about his early association with George Beavers, Dr. Scott replied, "I knew this article was being written about George Beavers. I just got back from Morrisburg last week; they told me about it." When Dr. Scott was asked what he was doing in Morrisburg he replied, "We were discussing a new bur design." Phenomenal enthusiasm after 52 years of practice!

It was Dr. Scott who in the 1960s contributed to one of Beaver Dental's greatest successes, the series of 12 bladed finishing burs. He was also instrumental in the design of the fine cross-cut helical spiral bur 1958 series. Dr. Scott's compliment, "He never



Dalton Smith checks a computerized cutting machine which creates bur "shanks" from a 12 foot length of specially alloyed steel.



High speed fusion of steel shank and carbide pill.

stopped listening to dentists", best described George Beavers' greatest attribute for success.

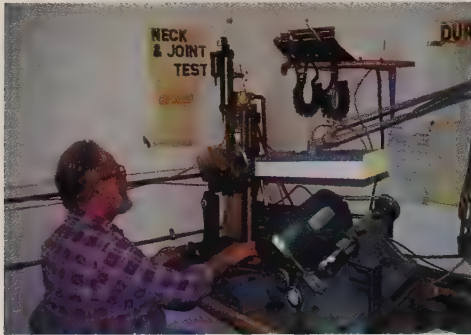
George Beavers died in 1975 but not before giving birth to a worldwide legacy of bur design and production. If he were here today and was told his plant's expected 1990 production would be twenty million burs, no one would be surprised to hear George Beavers say, "And every one of them better be the best!"

The Bur: Don't Take It For Granted

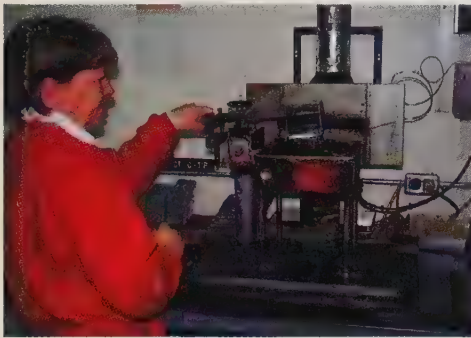
The bur's birth is really a two phase process, one alloyed steel, the other tungsten carbide. Numerous separate steps are required before the bur finds its way into a dentist's handpiece.

The bur begins its life as a "shank" cut from a twelve foot length of specially alloyed steel automatically fed into a computerized cutting machine. Separately, in another part of the factory, carbide powder, made from a mixture of British Columbian tungsten and high grade cobalt, is pressed into a "pill". Beeswax retains the primitive pill's shape until sintering in a hydrogen furnace at a temperature of 1435 degrees Centigrade produces the hardness so unique to carbide.

Tungsten carbide is very expensive and to make an entire bur from the material would be impractical if not prohibitive. Rudolph Funke, almost 40 years ago, perfected the complicated automatic



George Lewis tests for cutting ability, durability, joint and neck strength.



Barb Dennison "protect-o-tips" a covering of soft plastic to the bur heads before shipping.

welding process of joining carbide pill to steel shank. After this union the "blank" begins its first real start as a bur; the head is ground to the proper designated size.

After nickel plating in an "electroless" bath the bur goes to the automatic fluting machines to receive a final cutting edge. The flutes and edges are cut by diamond wheels made in the Beavers factory. These diamond wheels were formerly imported but better quality and cost-efficiency was achieved when Beavers began manufacturing their own. The diamond cutting wheel is an expensive part of the bur's birth. Beavers Dental produces 148 different sizes and shapes of burs, ranging from six to 30 blades.

Throughout the bur's construction it is subjected to numerous tests, assuring standards are constantly maintained. One such test has a bur cut a prescribed pattern into a glass block formulated to resemble tooth enamel hardness. Following final inspection the bur's head is plastic dipped for protection, a process unique to Beavers. Sorted and packaged the burs are sent on their way to dentists' offices in any one of 84 countries around the world.

"The Future Is for a Long Time"

When Dalton Smith was asked his opinion about the decrease in dental caries affecting the requirement for restorative dentistry, he smiled and quietly replied,



Marie Beckstead uses a microscope to inspect sintered carbide pills: one of numerous quality control tests.

"The future is for a long time." He went on to explain, "In 1985 we thought we had "peaked" at 9.5 million burs, but by 1989 we doubled that to 17.5 million.

Our 220 employees will continue to operate our plant 24 hours a day, seven days a week for a long time. We project producing over 20 million burs in 1990."

"In fact", Smith continued, "With the increased emphasis on cosmetic dentistry here in Canada and United States, plus the increasing markets overseas, Beavers Dental is more confident than ever. Only

recently we entered the diamond bur market after years of developing a revolutionary method of their manufacture".

Mr. Smith indicated the present emphasis on infection control will probably initiate a "throw-away" bur in the near future. The dentist would use the bur for treating just the one patient and then dispose of it. "After all," said Smith, "Today's bur is one of the least expensive commodities in a patient's treatment.

Whatever tomorrow may bring, the bur, with its countless shapes and with a myriad of uses, will continue to be an integral part of dentistry. Both dentistry and the bur evolved together, matured together, and will face the future together. One cannot exist without the other. Δ

References

1. A century of Service to Dentistry, 1944. p. 68. Philadelphia, The S.S. White Dental Mfg. Co.
2. Ibid., p. 80.
3. Foreign Trade, Department of Trade and Commerce, Ottawa, Nov. 17. 62.
4. Canadian Machinery, MacLean-Hunter, August, 1959.



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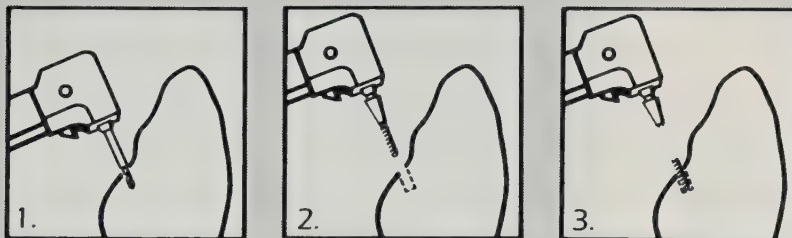
Interested applicants should forward their curriculum vitae, outlines of their research interests and names of three referees to: Dr. J.A. Hargreaves, Director of Graduate Studies and Research, Faculty of Dentistry, The University of Alberta, Edmonton, Alberta T6G 2N8.

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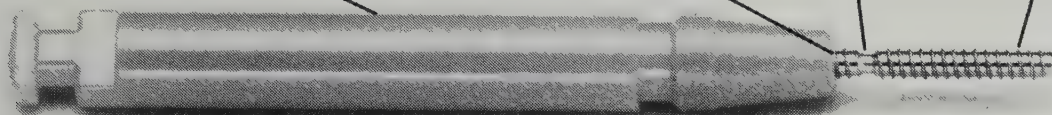


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(1) Wayne W. Barkmeier, DDS MS, report on file.

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Provincial origin of first-time writers of the Canadian Dental Aptitude Test

Ian C. Bennett, BDS, DDS, MSD

Dalhousie University, Halifax

Marcia A. Boyd, DDS, MA

University of British Columbia, Vancouver

ABSTRACT

A brief summary of the current status of the Canadian Dental Aptitude Test (CDAT) is presented. The number of first-time writers of the CDAT is reported by the province of their preference as designated by the candidate on the test application form. Anomalies in the numbers taking the test are discussed and relationships with other provincial and regional parameters developed. It is clear that the effect of the policy change at the University of Toronto, where the CDAT is no longer required for admissions purposes, has had a major effect on the numbers taking the test and the information available about the demographics, quality and size of the Canadian dental school applicant pool. The regional and provincial differences highlighted include a relatively smaller applicant pool in British Columbia, Manitoba and the Atlantic Provinces in addition to a relatively limited educational opportunity for potential dental professionals in British Columbia, Ontario and the Atlantic Provinces.

SOMMAIRE

Voici un sommaire de l'état actuel du Test d'aptitudes aux études dentaires (TAED) utilisé au Canada. Le nombre des candidats qui le passent pour la première fois est indiqué suivant la province de leur choix qu'ils ont indiquée sur leurs demandes d'inscription. Les anomalies touchant les nombres de candidats font l'objet de commentaires et des rapports sont établis avec les paramètres des autres provinces et régions. Il est évident que le changement de politique à l'Université de Toronto où le TAED n'est plus exigé aux fins d'admission, a eu d'importantes conséquences sur le nombre de candidats ainsi que sur les renseignements recueillis touchant les données démographiques, la qualité et le nombre des candidats s'inscrivant dans les écoles de médecine dentaire du Canada. Les différences régionales et pro-

vinciales soulignées comprennent, outre une chance de s'instruire relativement restreinte pour les professionnels dentaires éventuels en Colombie-Britannique, en Ontario et dans les Maritimes, un nombre de candidats relativement moins grand en Colombie-Britannique, au Manitoba et dans les Maritimes.

Introduction

The purpose of the Canadian Dental Association's aptitude testing program (CDAT) is twofold: 1) to gather information on a national basis about applicants to dental schools; and 2) to assist dental school applicants and Canadian dental schools in the process of admissions. Indirectly it is a service to the entire dental profession and the general public since it has the potential to enhance the quality of the profession by assisting in a more effective admissions process and by helping to secure the best individuals for entry to the profession. Responsibility for the administration of the test is assigned to CDA Staff, with significant assistance from the American Dental Association in Chicago, and the Dental Admissions Test Committee of the Council on Education and Accreditation of the CDA. A significant part of the activity of the DAT committee is the collection of information on the many aspects involved in dental admissions. This paper includes a brief overview of the current status of the CDAT and reports some of the information gathered by the DAT Committee regarding the provincial origin of potential dental students and presents some conclusions drawn from that material.

Current status of the Canadian Dental Aptitude Test

The Dental Aptitude Test in Canada has many similarities to the Dental Admissions Test in the United States. The major exceptions are that the Canadian program includes a Chalk Carving component as a measure of manual dexterity and does not include examinations in Quantitative Rea-

soning or Organic Chemistry. The CDAT was described in a series of articles in the Journal of the Canadian Dental Association in 1979.^{1,2,3,4,5,6} Currently the CDAT consists of a Reading Comprehension section and a Survey of Natural Sciences component (Biology and Inorganic Chemistry) which comprise the academic portion. The manual portion has two components, the Perceptual Abilities Test (PAT) and the Chalk Carving Test. With the exception of the Reading Comprehension Test, which is currently not used for French-speaking applicants, each examination is translated to produce the French language version. The use of a French language version of the Reading Comprehension Test is now under discussion and may be introduced in the future. The 16 Personality Factor Test (16PF), administered for research purposes since 1974, has been discontinued because enough data had been accumulated for analysis.

The test is administered in multiple university centers throughout Canada in November and February each year. Some of the smaller centers test only once each year but every effort is made to ensure that access to the test is made as easy as possible for all potential dental school applications. In the past the test was usually administered on a Saturday, and occupied the morning and part of the afternoon. Changes were introduced for the 1988-89 cycle which allow for an earlier start, shorter breaks, and completion before a later lunch break. It is expected that this change will make the test arrangements easier for both candidates and test administrators.

Individual results are reported to the candidates who have taken the test and to each of the dental schools they have designated. Up to and including the test in the Spring of 1988, scores were reported on an eleven point scale ranging from plus nine (9) to minus one (-1). The reporting scale was changed in the fall of 1988 to a thirty point scale, 30 to 1, in order to allow more discrimination and to

provide additional information so as to better evaluate the candidates on individual tests and between tests taken at different times.⁷ In the past, a composite score was calculated in both the academic and manual components of the test. However, recent research has demonstrated that the test results can be used more effectively if the individual components are considered separately.⁸

There is no "pass mark" for the test. The score indicates the ranking of the individual in relation to the other candidates. The former scores were norm-referenced to the group taking the test at that particular session. For example a score of 4 on the eleven point scale indicated that the candidate was close to the middle of the total group taking the test. Several dental school admissions committees, however, have set "cut-off" scores based on research and their past experience with candidates who became students in their schools.^{2,6} For instance, some schools interpreted a Chalk Carving score below the mid-performance of the group as an indication that an individual may have difficulty with the psychomotor skills aspects of the curriculum and have excluded them. Other schools do admit applicants with lower scores but make their decision knowing that they may have to provide remedial activities or other educational support.

The new reporting scale, with the exception of the Chalk Carving Scores, is ability-referenced, and will allow more reliable comparisons across test sessions held at different times. A Supplementary Score Report on each individual is provided for each separate group of written tests. This provides additional information to aid in individual analysis of test performance and the candidates' ability. For technical reasons the chalk carving test continues to be norm-referenced although the reporting has been converted to the 30 point scale. The chalk graders continue to study representative samples of carvings from different tests to ensure that there is no substantial difference in performance for similar scores from test to test.

The Division of Educational Measurements of the American Dental Association, which administers the test in the United States, is the major source of assistance for the Canadian test. They maintain the database and carry out studies to assess the effectiveness of the DAT for its stated purpose of evaluation for candidate selection.

Contrary to popular belief, it was not ever intended that the DAT would be able to predict the class standing of individual

students but rather to identify those who would likely be successful or unsuccessful in a dental pre-doctoral program. However studies done by the ADA Division of Educational Measurements comparing scores on the DAT and college grade point averages with grades obtained in dental school show that the DAT is the single best overall predictor of dental school performance, somewhat better than college grades, when a large number of schools are evaluated.⁸ The best prediction of first and second-year dental school performance is achieved when the separate components of the DAT are combined with the pre-dental science grades. The results at individual schools, not surprisingly, show considerable variation but whether these differences are due to variety in the curriculum at individual schools, to measurement error in the schools or measurement error in the DAT is open to speculation.

The province of origin of new writers of the CDAT

In an earlier publication⁹ the number of first time writers of the Canadian Dental Aptitude Test (CDAT) was compared and contrasted with the similar figures from the American Dental Admissions Test (DAT) and the differences between the two countries noted. It showed that the major reduction in individuals taking the test for the first time in the United States was paralleled in Canada for the period 1977 to 1982 but that since that date, while the decrease in the United States had continued, the situation in Canada had apparently stabilized and the numbers of first-time writers of the test had increased slightly up to 1986. In that study it was not possible to determine if there were any inter-provincial differences in the numbers of individuals writing the test for the first time since records were not available indicating the provincial origin of the candidates.

Some years ago a question was added to the application form requiring applicants to indicate their preferred province of residence. The purpose of this question was not to establish the legal province of residence but rather to require that applicants be consistent in claiming to be a resident of a particular province. This was important to schools which had established an admissions policy that supported the students of their province and the families paying taxes within the province. It had become apparent that some applicants were claiming to be residents of more than one province so that their chances of admission would be enhanced. Usually the local address of a

relative or friend was used to make the claim of residence seem more believable. By requiring the preferred province of residence to be stated by the applicant, and including this information on the Report of Scores Form which was sent to the dental school, it became easier to check a spurious claim.

In the Fall of 1983 the CDA staff began to keep records of the preferred province of residence for each applicant writing the test for the first time. This information, gathered now for six years, has become the data on which this paper is based.

Results

Table 1 shows the numbers of first-time writers of the CDAT according to their preferred province of residence for the six years reported in this study. For convenience the Yukon Territory has been coupled with British Columbia and the Northwest Territories joined with Alberta. The table also shows figures for regional groupings of provinces; the four Western provinces, the four Atlantic provinces, Canada without Ontario, and the combined Western and Atlantic Provinces. Each figure on the table represents the combined numbers from the Fall and Spring tests of the cycle, e.g. November of 1983 and March of 1984 are considered to be the components of the 1983-84 test cycle.

Two features of **Table 1** deserve comment. First, there was a major increase in the first-time writers from the Province of Quebec in 1986-87. It is not clear why this happened and no logical explanation can be offered. Discussions with individuals¹⁰ involved in the admissions process at Quebec dental schools did not reveal any apparent cause but a comparable rise in the number of applications in that same year was reported.

Secondly, there has been a major decline in the number of first-time writers from the Province of Ontario since the test year 1986-87. Almost certainly the major cause was the decision of the University of Toronto to no longer require the CDAT for admission to their DDS Program, effective with the class admitted in 1987. This decision taken by the University of Toronto was made in spite of the accreditation requirement of the Council on Education and Accreditation of the Canadian Dental Association that the CDAT, or a valid alternative approved by the Council, be used as part of the admissions process by all DDS/DMD programs seeking accreditation. This action by the University of Toronto has led to their accreditation status being compromised at less than full approval. This change in

the University of Toronto's admission policy is very likely the cause of the large decrease in the numbers of individuals from Ontario taking the test since Ontario applicants who do not wish to apply for admission to the University of Western Ontario and apply only to the University of Toronto, need no longer take the test.

Recent reports indicate that the University of Toronto has reinstated the requirement that all applicants to the DDS program must take the CDAT. When implemented, this decision should assist greatly in the process of information gathering about the applicant pool.

A further effect of the Toronto decision relates to the national information data base on Canadian dental school applicants. This has been severely compromised since individuals who wish to apply only to the University of Toronto program are effectively outside the data gathering system which has been set up by the CDA. The position of the DAT Committee has been to request that the University of Toronto reconsider its decision and reinstate the requirement for the test so that an accurate and complete data base on Canadian dental school applicants can be re-established and maintained. The importance of a complete and accurate database has been emphasized in an earlier publication.¹¹ The additional benefit would be broader and more detailed information about their applicants upon which to make selection decisions for admission.

Other than the two matters discussed above the change in the numbers of first-time writers in each province and grouping of provinces from year to year, for the six year period included in the study, is not remarkable.

These numbers of first-time writers should be viewed in the context of a strong provincial or regional emphasis in the admissions policies of the Canadian dental schools. With few exceptions the vast majority of students admitted to dental schools in Canada come from the province or region in which the school is located. This is a natural consequence of Canadian geography but the tendency is much stronger than in the United States. For example, in the four-year period 1979 through 1982, of 2,025 first year dental students admitted to the ten Canadian schools only 89, or less than 4.4 per cent, were individuals from outside the province or region in which the school was located.¹² The analysis of similar data from the same source and for the same period in the United States shows that over 25 per cent of entering first year dental students were from outside the

TABLE 1

NEW DAT WRITERS IN TEST YEAR	1983-4	1984-5	1985-6	1986-7	1987-8	1988-9
PROVINCE OR REGION						
BRITISH COLUMBIA AND YUKON	76	78	90	78	77	75
ALBERTA & NORTHWEST TERRITORIES	115	153	139	141	175	112
SASKATCHEWAN	49	51	50	55	61	48
MANITOBA	67	57	48	42	33	33
ONTARIO	469	457	513	250	196	222
QUEBEC	414	415	437	600	410	364
NEW BRUNSWICK	16	8	7	10	16	11
PRINCE EDWARD ISLAND	3	6	0	5	5	2
NOVA SCOTIA	49	59	52	54	52	38
NEWFOUNDLAND	8	13	14	7	5	12
TOTAL CANADIAN	1,266	1,297	1,350	1,242	1,030	917
OTHER COUNTRIES	2	2	0	0	3	0
GRAND TOTAL	1,268	1,299	1,350	1,242	1,033	917
WESTERN PROVINCES	307	339	327	316	346	268
ATLANTIC PROVINCES	76	86	73	76	78	63
CANADA LESS ONTARIO	797	840	837	992	834	695
WESTERN & ATLANTIC PROVINCES	383	425	400	392	424	331
ADJUSTMENT QUEBEC				-181		
QUEBEC ADJUSTED	414	415	437	419	410	364
ADJUSTMENT ONTARIO				222	289	182
ONTARIO ADJUSTED	469	457	513	472	485	404
TOTAL WITH OR AFTER ADJUSTMENTS	1,266	1,297	1,350	1,283	1,319	1,099

TABLE 2

POPULATION IN THOUSANDS ON DATE	Jan-84	Jan-85	Jan-86	Jan-87	Jan-88	Jan-89
PROVINCE OR REGION						
BRITISH COLUMBIA AND YUKON	2,857	2,886	2,906	2,935	2,984	3,055
ALBERTA & NORTHWEST TERRITORIES	2,388	2,394	2,414	2,431	2,441	2,468
SASKATCHEWAN	996	1,005	1,010	1,012	1,012	1,007
MANITOBA	1,051	1,059	1,067	1,076	1,082	1,083
ONTARIO	8,860	8,966	9,071	9,205	9,361	9,515
QUEBEC	6,484	6,505	6,531	6,571	6,618	6,668
NEW BRUNSWICK	706	709	711	712	713	716
PRINCE EDWARD ISLAND	125	126	126	127	128	130
NOVA SCOTIA	861	867	872	877	882	885
NEWFOUNDLAND	572	572	570	568	568	569
TOTAL CANADIAN	24,900	25,089	25,278	25,514	25,789	26,095
WESTERN PROVINCES	7,292	7,344	7,397	7,454	7,519	7,613
ATLANTIC PROVINCES	2,264	2,274	2,279	2,284	2,291	2,299
CANADA LESS ONTARIO	16,040	16,123	16,207	16,309	16,428	16,580
WESTERN & ATLANTIC PROVINCES	9,556	9,618	9,676	9,738	9,810	9,911

state in which the school was located. The percentage was even higher for some private U.S. dental schools. More recent data is not available for Canada but there

seems to be no reason to believe that the situation has significantly changed.

Table 2 shows the population of each province as estimated by Statistics

TABLE 3

NEW DAT WRITERS PER MILLION POPULATION IN	1983-4	1984-5	1985-6	1986-7	1987-8	1988-9
PROVINCE OR REGION						
BRITISH COLUMBIA AND YUKON	27	27	31	27	26	25
ALBERTA & NORTHWEST TERRITORIES	48	64	58	58	72	45
SASKATCHEWAN	49	51	50	54	60	48
MANITOBA	64	54	45	39	30	30
ONTARIO	53	51	57	27	21	23
QUEBEC	64	64	67	91	62	55
NEW BRUNSWICK	23	11	10	14	22	15
PRINCE EDWARD ISLAND	24	48	0	39	39	15
NOVA SCOTIA	57	68	60	62	59	43
NEWFOUNDLAND	14	23	25	12	9	21
TOTAL CANADIAN	51	52	53	49	40	35
WESTERN PROVINCES	42	46	44	42	46	35
ATLANTIC PROVINCES	34	38	32	33	34	27
CANADA LESS ONTARIO	50	52	52	61	51	42
WESTERN & ATLANTIC PROVINCES	40	44	41	40	43	33
QUEBEC ADJUSTED	64	64	67	64	62	55
ONTARIO ADJUSTED	53	51	57	51	52	42
CANADA ADJUSTED	51	52	53	50	51	42

TABLE 4

FIRST YEAR PLACES IN FALL OF	1984	1985	1986	1987	1988	1989
PROVINCE OR REGION						
BRITISH COLUMBIA AND YUKON	40	40	40	40	41	40
ALBERTA & NORTHWEST TERRITORIES	52	49	50	50	50	50
SASKATCHEWAN	21	21	21	21	21	21
MANITOBA	30	31	26	26	27	25*
ONTARIO	144	144	145	145	145	104
QUEBEC	164	166	176	171	153	160
ATLANTIC PROVINCES	41	40	40	32	34	32
TOTAL CANADIAN	492	491	498	485	471	432
WESTERN PROVINCES	143	141	137	137	139	136
CANADA LESS ONTARIO	348	347	353	340	326	328
WESTERN & ATLANTIC PROVINCES	184	181	177	169	173	168

* Actually 20 first-year students were accepted, but 5 transfer students were admitted to the second year of the program. This is assumed to be a one-time situation.

Canada on January 1 of each year of the study period. Each province shows an annual increase with the exception of Newfoundland which has been declining slightly but did have a small increase in 1988, and Saskatchewan which declined slightly in 1988.

Table 3 shows the number of first-time writers of the CDAT per million popula-

tion of each of the provinces or regions. The Western provinces ranged between 46 and 35 new writers per million and the Atlantic provinces between 38 and 27 new writers per million. Ontario, before the change at the University of Toronto, ranged between 57 and 51. Quebec, disregarding the abnormal year in 1986-87, ranged between 67 and 54. Canada with-

out Ontario and Canada as a whole until the change at the University of Toronto (again ignoring 1986-87 in Quebec) shows a fairly narrow range between 53 and 42 new writers per million population.

Table 4 shows the first year places actually or expected to be filled in the dental schools in the various provinces or regions for the fall following the year of the test cycle. Since there are no dental schools in three of the four Atlantic provinces it is assumed, despite the significant French-speaking population of New Brunswick, that Dalhousie University serves the entire region.

Table 5 shows the number of first-time writers of the CDAT for each first-year place in the dental school(s) of the province or region. It is believed that this index represents one measure of the amount of choice a dental school has in selecting its student body. A lower number would indicate a more limited choice among applicants and possibly a greater need for recruitment efforts to raise the number, and more importantly, the quality of the applicants. Figures for the six-year period range from a high of 3.5 new writers per first-year place in Ontario in 1986, Quebec in 1987 and Alberta in 1988 to a low of 1.2 new writers per first-year place in Manitoba in 1984 and 1988. The Canadian average was above 2.5 new writers per first year place until 1988 when it fell to 2.2 and 1989 when it further reduced to 2.1. However, after adjustments for the changes in Ontario were made, the number of first-time writers per first year place remained above 2.5.

Table 6 shows the number of first-year places in the dental schools of each province or region per million population. It is believed that this index represents one measure of the educational opportunity in dentistry in the different provinces or regions. When the figure is low it is an indication that the young people of the province or region have a reduced chance of a dental education in their province or region. This may lead, among other possibilities, to their seeking an education elsewhere if they can afford the usually higher cost, or to their being denied the educational opportunity because of an inability to finance these higher costs. Ontario with only 16 first year dental school places per million population from 1984 to 1987 is remarkably low and is now even lower, about 11, since the first year class at the University of Toronto was reduced to 64 in 1989. Quebec has been consistently high at 23-27 per million. The current figures in the other

provinces or regions range from 13 in British Columbia and 14 in the Atlantic provinces to 23 in Manitoba. The Canadian range has fallen from 20 to 17 during the six year period.

Discussion

1. Anomalies in Numbers

One of the apparent anomalies referred to above was the unusually large number of first time writers of the CDAT in Quebec in 1986-87. If it is assumed that this large number of first time writers was an aberration and that a more representative number would have been the average of the other four years of the study then the number taking the test in Quebec in 1986-87 could be adjusted down by 181 new writers to 419.

The decision of the Faculty of Dentistry at the University of Toronto to no longer require the CDAT for admissions purposes has made analysis of the current status of the numbers of individuals joining the dental applicant pool much more difficult. However some extrapolations from the existing data can be made. For the three years 1983-84 to 1985-86, when the CDAT was required at Toronto, the average number of new writers from Ontario was about 58 per cent of the new writers from the rest of Canada. It appears to be a reasonable working assumption that the proportion of writers from Ontario, if the CDAT was still required at Toronto, would follow the proportions of the previous three years. While not necessarily the case, if this was true, it could be calculated that about 222 more individuals from Ontario would have written the CDAT for the first time in 1986-87, 289 more in 1987-88 and 182 more in 1988-89. The number of new writers in Ontario now can be presumed to be principally the individuals who intend to apply only to the University of Western Ontario or to both of the Ontario dental schools. Those who plan to apply only to the University of Toronto would probably not be included.

The bottom rows of **Table 1** show the actual data adjusted to these assumptions. Essentially these rows of **Table 1** show that the numbers of first time writers, when adjusted as described above, remained reasonably stable with only slight fluctuations until the adjusted number fell to less than 1100 in 1988-89. It may be assumed that this is a matter of ongoing concern but not yet a major problem for Canadian dental education up to 1989. However this should not be interpreted to mean that the situation will remain satisfactory into the future.

TABLE 5

FIRST TIME WRITERS PER FIRST YEAR PLACE IN	1984	1985	1986	1987	1988	1989
PROVINCE OR REGION						
BRITISH COLUMBIA AND YUKON	1.90	1.95	2.25	1.95	1.88	1.88
ALBERTA & NORTHWEST TERRITORIES	2.21	3.12	2.78	2.82	3.50	2.24
SASKATCHEWAN	2.33	2.43	2.38	2.62	2.90	2.29
MANITOBA	2.23	1.84	1.85	1.62	1.22	1.32
ONTARIO	3.26	3.17	3.54	1.72	1.35	2.13
QUEBEC	2.52	2.50	2.48	3.51	2.68	2.28
ATLANTIC PROVINCES	1.85	2.15	1.83	2.38	2.29	1.97
TOTAL CANADIAN	2.58	2.65	2.71	2.56	2.19	2.12
WESTERN PROVINCES	2.15	2.40	2.39	2.31	2.49	1.97
CANADA LESS ONTARIO	2.29	2.42	2.37	2.92	2.56	2.12
WESTERN & ATLANTIC PROVINCES	2.08	2.35	2.26	2.32	2.45	1.97
QUEBEC ADJUSTED	2.52	2.50	2.48	2.45	2.68	2.28
ONTARIO ADJUSTED	3.26	3.17	3.54	3.25	3.35	3.89
CANADA ADJUSTED	2.57	2.64	2.71	2.64	2.80	2.54

TABLE 6

FIRST YEAR PLACES PER MILLION POPULATION IN	1984	1985	1986	1987	1988	1989
PROVINCE OR REGION						
BRITISH COLUMBIA AND YUKON	14	14	14	14	14	13
ALBERTA & NORTHWEST TERRITORIES	22	20	21	21	20	20
SASKATCHEWAN	21	21	21	21	21	21
MANITOBA	29	29	24	24	25	23
ONTARIO	16	16	16	16	15	11
QUEBEC	25	26	27	26	23	24
ATLANTIC PROVINCES	18	18	18	14	15	14
TOTAL CANADIAN	20	20	20	19	18	17
WESTERN PROVINCES	20	19	19	18	18	18
CANADA LESS ONTARIO	22	22	22	21	20	20
WESTERN & ATLANTIC PROVINCES	19	19	18	17	18	17

The applicant pool has already reduced from an adjusted average over 1,300 for the first five years reported on here to under 1,100 in 1988-89. It may not be too soon to begin selective recruitment efforts, to exercise caution in tightening admission requirements and to consider the impact on recruitment of changing prerequisites in order to reduce the academic load of the pre-doctoral dental program.

2. Equality of Educational Opportunity

It is clear that Canadians from different provinces have widely different probabilities of being admitted to a dental program depending on their province of residence.

Residents of Atlantic Canada and British Columbia currently have only about 14 or 13 places per million whereas residents of Quebec have as many as 24 places per million. Ontario now has the very low figure of 11 places per million. These differences may be adjustments for past imbalances but for the group seeking admission to dental school now, the difference may significantly affect their career choice. When these data are viewed in conjunction with the relatively high number of new writers per million from Ontario (compared to British Columbia or the Atlantic Provinces) the relative dearth of first year places for applicants from Ontario is emphasized. This may explain

the large number of Ontario residents studying dentistry in the U.S.A., as described in a recent paper by the same authors.¹⁴

Conclusions

1. It appears that the numbers of new entrants to the applicant pool, for the first five years of the period studied, remained relatively stable. Recently there has been a decline of about 8 per cent, if all the assumptions made are correct. However it is probably unwise to be complacent.

2. Predictions for the future and analysis of current information have been made much more difficult by the decision of the University of Toronto to no longer require the CDAT for admissions purposes because of the disruption this has caused in the data gathering system.

3. During the first five years of the period studied, the number of first time writers per million population continued to be approximately 51 for Canada as a whole, after adjustments were made for the decline in test takers from Ontario. In the 1988-89 year this figure fell to 42, again after adjustments are made for the decline in test takers from Ontario.

4. British Columbia and, more recently Manitoba were well below average in new writers per million. Quebec was consistently high. As a region, the Atlantic Provinces were the lowest in Canada but this was caused by the small numbers of new writers from New Brunswick, Prince Edward Island and Newfoundland. Nova Scotia itself has been above average.

5. The number of first time writers of the CADT continues to average over 2.5 per first year place, assuming the adjustments made are correct. This is significantly higher than the U.S. figure which is less than 1.1 first time writers per first year place.

6. The Atlantic provinces, Manitoba and British Columbia had a below average number of new writers per first year place. Alberta, Saskatchewan and Quebec were above average. Ontario before the changes at the University of Toronto was also above average.

7. The number of first year places per million population changed from 20 to 17 for Canada as a whole over the study period.

8. Regional differences in the number of first year places per million population were significant. Atlantic Canada, Ontario and British Columbia were below

the average of 17, in the 11 to 14 range (less by 17 per cent to 35 per cent), while Manitoba and Quebec were above average with 23 or 24 per million (higher by 35 per cent to 41 per cent).

It is hard to overemphasize the importance of an adequate data base when decisions have to be made, especially decisions which have long term and far-reaching effects and/or are difficult to reverse. Canadian dentistry has been traditionally unwilling to spend the time, money and effort necessary to accumulate accurate data and some of the decisions made in the past reflect that lack. Hopefully this will change in the future. The Council on Education and Accreditation is to be commended for its recent change in policy which requires all dental programs wishing to be accredited to complete annually a survey questionnaire on dental education. This will help to enhance the data base of dental education. Other areas of interest and concern to the dental community should probably be reviewed by all involved groups to ensure that their national needs for information are assessed in a more realistic light.

In spite of the apparently adequate applicant pool which continues to be available, the need for dental practitioners to be active and positive in dental student recruitment continues to be a very essential component in ensuring a high quality dental profession in Canada in the future.¹³ Practitioners should not damage the future of the profession by discouraging high caliber potential dental students from applying. The recruitment of high quality dental applicants will be enhanced by nationally planned initiatives, ideally with regional equality of opportunity, jointly undertaken by CDA, ACFD and other interested organizations as well as by the individual dental schools. This is especially true for those with more limited applicant pools. The intent would be to increase the number and quality of the applicant pool but not necessarily the size of the first year enrollment.

With changing opportunity and with more Canadians applying and being accepted to dental schools beyond their provincial and national borders new initiatives could be considered. It may be the time for Canadian organizations, such as the Association of Canadian Faculties of Dentistry and the Canadian Dental Association to initiate a national application service to track applicants and maintain a database on potential Canadian dental students. Δ

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Dr. Ian Bennett is Professor of Pediatric Dentistry and Former Dean of the Faculty of Dentistry, Dalhousie University, Halifax, Nova Scotia, B3H 3J5. Dr. Bennett has been Chairman of the Dental Admissions Test Committee of the Canadian Dental Association since 1987.

Dr. Marcia Boyd is Associate Professor of Clinical Dental Sciences and Associate Dean at the Faculty of Dentistry, University of British Columbia, Vancouver, B.C. V6T 1W5. Dr. Boyd was Chairman of the Dental Admissions Test Committee of the Canadian Dental Association from 1980 to 1987.

Send requests for reprints to Dr. Bennett at Dalhousie University.

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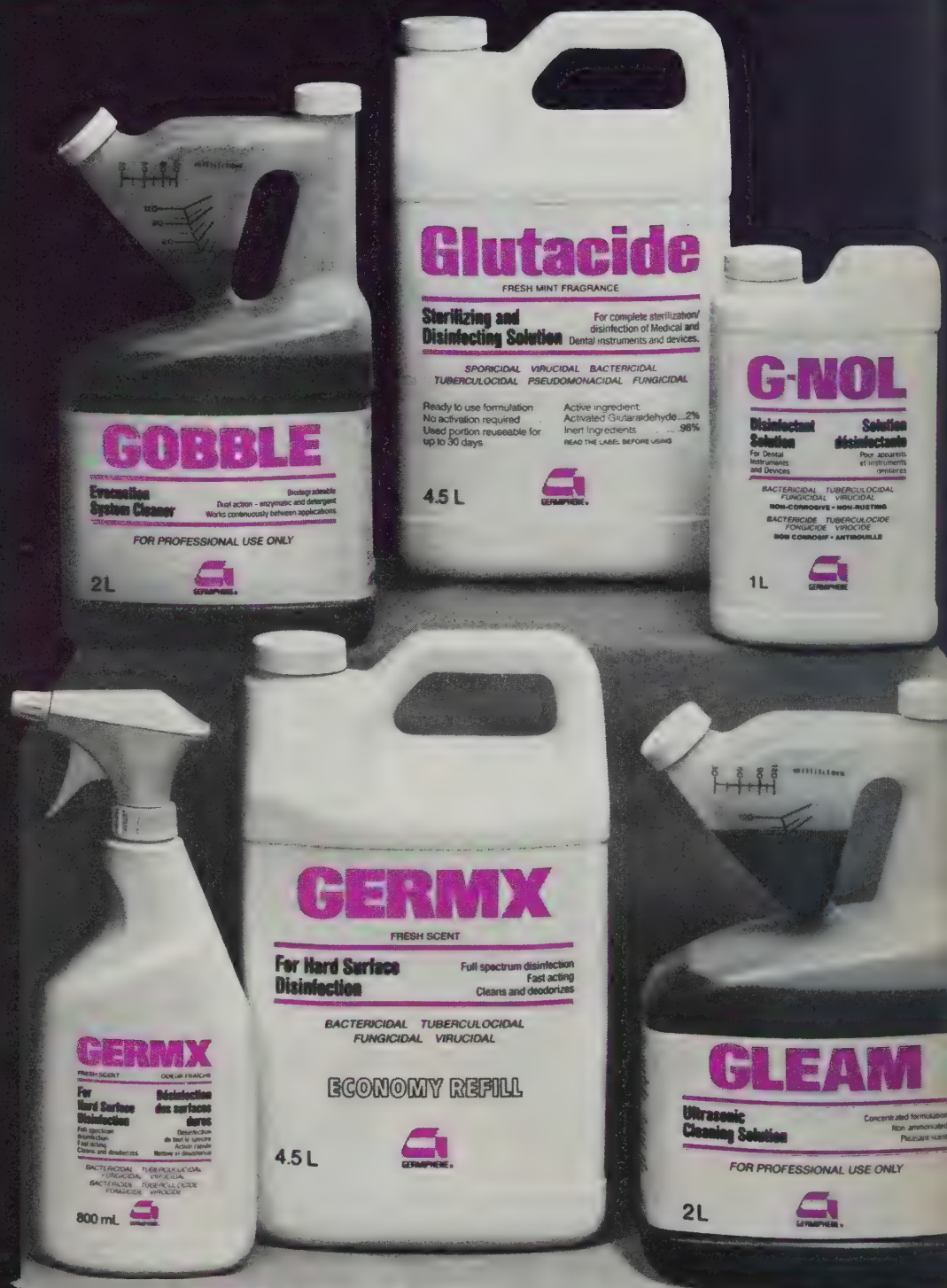
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An overview of non-pharmacological pedodontic behaviour management techniques for the general practitioner

Robert J.G. Piedalue, BSc(Kines)(SFU), BSc(Dent), DMD
Baie Verte, Nfld.

Alan Milnes, DDS, Dip Paed, PhD(Oral Biol), FRCD(c)
Winnipeg, Man.

ABSTRACT

All members of the dental team who are involved in providing dental health services to children need to be familiar with behaviour management techniques in order to ensure that safe and high quality treatment can be delivered. Proper management of the child's behaviour will prevent the development and conditioning of poor responses to dental treatment and will aid in fostering a positive acceptance of this necessary health service. This paper briefly reviews child development in relation to behaviour management, the importance of parental attitudes in both shaping and managing behaviour and general considerations of which the dental office staff should be aware. Common non-pharmacological techniques for managing the behaviour of children in the dental office are reviewed.

SOMMAIRE

Tous les membres de l'équipe dentaire qui offrent des soins dentaires aux enfants doivent bien connaître les techniques ayant trait à la gestion du comportement afin d'assurer des traitements sûrs et de qualité supérieure. Avec les enfants, une bonne gestion de leur comportement pourra les empêcher d'avoir tendance à répondre mal aux traitements dentaires et les aidera plutôt à accepter favorablement des services de santé qui leur sont nécessaires. Dans cet article, on couvre brièvement le développement de l'enfant relativement à la gestion de son comportement, l'importance des parents et de leurs attitudes tant pour conditionner que pour gérer le comportement de leurs enfants ainsi que les considérations générales dont le personnel du cabinet doit être conscient. On révisé également les techniques non pharmacologiques communes pour gérer le comportement des enfants au cabinet.

Introduction

Perhaps one of the most underrated skills among dental professionals is that of patient management. Yet it is probably the most critical factor from the viewpoint of the patients. Managing children is perhaps even more important since a foundation is to be built upon which a child will either detest and fear the dentist or trust and feel comfortable with the dentist. It is an accepted truism that childhood experiences are critical in forming adult behaviour. Several behavioural researchers have concluded that this is especially true with dentistry.^{1,2} Perhaps this contributes to the low percentage of the population who regularly seeks dental care.

Pain is a necessary evil in our lives, as is a certain amount of fear and anxiety. The distinction between normal and abnormal is made according to how we react to pain, fear and anxiety. Allowing the three to get out of control places one in a state of panic or mania. Behaviourists state that the necessary component for a healthy life is a coping mechanism. Children are less likely to have developed a coping mechanism for the dental experience,³ and it is incumbent upon the dental team to assist children in coping with the situations that induce stress and, more critically, since children are receptive, in teaching coping skills.

Treatment of problematic children may be too demanding for some general practitioners. However, as the business of dentistry becomes more competitive, more will deem it a necessary practice-builder. It can also be a very rewarding experience to help one overcome their fears and anxieties. The first step in the treatment of anxious, fearful children is attitudinal. One must be understanding, empathetic, observant and flexible.⁴ Secondly, basic knowledge of child development and behavioural modification

techniques will assist the clinician in enriching these qualities.

The purpose of this paper is to review the considerations and non-pharmacological techniques involved in managing the pedodontic patient. As alluded to in the above discussion, there are general considerations for all children, behaviour modification techniques for anxious children and conditioning techniques for poorly socialized children.

Clinical relevance of child development

Counter-productive behaviour in a child may be the result of fear and anxiety, but may also be attributable to existent behaviour patterns. Understanding child development will aid the clinician in determining the prime motivator for the behaviour and in establishing developmental stage-specific behaviour management skills.

The Adlerian Behaviour Development Theory provides a clinically relevant background from which follows some straight-forward rules for dealing with problematic children. This theory states that a child has some innate biological instincts or drives which are at odds with the rules we must adhere to in order to be a community oriented species.⁵ When these instincts are not adequately trained out of existence, the result is a poorly socialized child often described as "spoiled" or "King-child".⁵ The mistaken goals of such a child are for undue attention, power over others, or in extreme cases, retaliation and revenge over others, and in those who have had their self concept destroyed, complete inadequacy.⁵ These goals must not be reinforced. The child should not consistently be given undue attention, or be allowed to feel a winner in the power struggle, or even be allowed to feel that the adults are playing the same power struggle, retaliation and revenge games.⁵

The Cognitive Theory of Piaget provides guidance on the best input modalities for learning in children. For example, the toddler, or sensorimotor stage (about 15 to 24 months), is one where the child has a thirst for knowledge through his/her sensorimotor systems. The child is not yet autonomous and therefore will be better off with mother present.⁶ The toddler desires to touch and play with new objects and therefore can be distracted by big bright objects or by allowing them to hold objects in their hands. The toddler is difficult to keep still long enough for treatment sessions because of their desire to touch and play. The preschooler or preoperational stage child (about 2 to 7 years) will be autonomous to a large extent and capable of verbal communication.⁶ The child is very aware of self, space and time⁶ but all from an egocentric viewpoint.⁷ The thousand questions the child may ask, however, could be an attempt to delay treatment, according to some theories. The concrete (7 to 12 yrs.) and formal (12 yrs, and up) operational-stage children are into logical communication,^{6,7} and therefore one would expect the cognitive mechanisms of behaviour modification to be effective.

The dental literature uses observation-based, clinically relevant classification systems. These are all operator-dependent, and possibly environment and procedure-dependent. The Lamphire classification distinguishes between tense cooperative, outwardly apprehensive, fearful, stubborn or defiant, hypermotive and heart-patient children.⁸ A modification of this system by Nathan and Nichelsen⁹ added the whining child and changed the heart patient to the handicapped child.

The Frankl Behaviour Rating Scale is used post-treatment as a record of the child's behaviour.^{10,11} It distinguishes between definite negative, negative, positive, and definite positive. Wright et al.² suggest the addition of short-hand notations to supplement the rating. For example, the notation "(-)Inj", means negative behaviour during injection while "(+) with Mom", acts as a reminder that the mother's presence facilitates treatment.

Clinical relevance of parents' attitudes

Parental attitudes will affect the way a parent perceives the clinician's management of the child. Parents may also view disciplinary actions by the dental team as an insult to their child-rearing practices.¹² Managing parents can be a challenge in these instances, and therefore it is important to understand parental attitudes,

and establish strategies for dealing with parents accordingly.¹²

Pinkham distinguishes between three types of parental attitudes.¹² Those who practise "the school of hard knocks" beliefs will easily hand over their child for the dentist to manage as he sees fit. Those who practise the "Dr. Spock" type of approach of not upsetting the child will be difficult to deal with, and those unsure of their parenting strategies will likewise be unsure about the dental treatment. The parents who are experiencing a guilt trip will not hesitate to project blame onto the dentist for their child's behaviour. Similarly, if the indulged child is successfully managed by the dentist, the parent may become jealous and even sabotage the next appointment.¹² The misbehaviour is secretly applauded in order for the parent to see the child as "bad" with other adults as well as with themselves.¹²

Parents are best managed tactfully and informed prior to any potential problem. This will decrease the likelihood of upset parents after the incident and of sabotage by overprotective and overindulgent parents before appointments.² This includes obtaining informed consent by reviewing verbally or on a printed consent form all possible eventualities rather than just obtaining general consent for treatment.¹³ This procedure has merit from a patient management approach as well, since it may raise questions regarding treatment modalities at the start of the treatment rather than at potentially inappropriate times.¹³ For example Wright et al.² relate a situation where the child's behaviour deteriorates while being ignored and kept waiting as the dentist has to re-explain the day's procedure to the mother.

General considerations in managing child behaviour

If a practitioner is interested in treating children, there are some simple preparations that can make a significant difference on the child's outlook of the dental experience, thereby assisting in the current and future behaviours of the child.^{6,14}

i. Pre-appointment preparation of child

Initial contact with the dental office will occur when the parent calls to book the first appointment. During this conversation the receptionist can question the parents about the child's previous dental experiences and provide simple information regarding preparation of the child for the first visit. This may also be accomplished with a pre-appointment letter from the dental office. The questions

asked of the parent include basic demographics and history including the anxiety level of the child and the dental anxiety of the parents.^{15,16}

The pre-appointment instructions generally ask the parents to give as little information to the child as possible, thereby preventing any distortion of the truth and to prevent the parent from verbalizing their own fears to the child.¹⁴⁻¹⁶ Interestingly, the pre-appointment letter has been found to have little effect on the child for the first visit, but a definite positive effect on the parents.^{14,16} By providing simple information on management problems and management techniques employed in the office the dentist protects himself and the dental team from later difficulties with the parents.^{5,13} This may be done either prior to the first appointment, or after the examination and prior to any treatment.

The receptionist can also play a role in observing the child's and parent's behaviour in the reception area, then informing the dentist of how they interact and the child's independence.^{6,14} Observation of the child's behaviour and the parent-child interaction can also be assigned to the hygienist or assistant.¹⁶

ii. Office environment

The office environment should attempt to make the child comfortable, or at least keep from frightening him/her before the examination. Mathewson et al.⁶ and Grinberg and Schor¹⁵ suggest a colourful environment, with decorations appealing to children. This would include posters of other children acting as role models for oral health¹⁵ and toys, games and books suited to children of different ages.⁶ In addition to providing atmosphere, these items will keep a child entertained should the waiting time be unexpectedly long.

iii. Staff attire

Staff attire is probably only of importance when the child has had a conditioned aversive response to professionals in clinical attire.¹⁴ In these instances the parents will usually be aware of this and will inform the dentist. Current guidelines on infection control suggest a return to hospital-style attire. An alternative which satisfies infection control and is non-threatening would be to maintain a selection of street clothing which is worn only in the dental office.

iv. Timing and duration of appointment

While many clinicians feel that children are more likely to display positive behaviours at a morning appointment, the

limited research does not support the time of day as having any significant effect on child behaviour.¹⁷ However, the research has not examined this issue relative to toddlers and infants who are becoming more frequent visitors to the offices of preventive-oriented dentists. The time of the scheduled appointment is probably more dependent on convenience than on the effect it may have on child behaviour.¹⁴ In addition, no reports mention the significance of the time on the dentist's behaviour. One can only assume that we all have a time of day where our performance in managing the behaviour of children is optimal.²

The length of the appointment can vary significantly, depending on the age of the child. Pre-school children have attention spans lasting only a few minutes. As the child develops, the attention increases dramatically. The research demonstrates a tendency for deterioration of behaviour with greater than a 30 to 45 minute appointment.^{17,18}

Greeting and communicating with the child

The dental team should show empathy and relate to the child.^{6,14-16} This is facilitated by keeping the wait in the reception area to a minimum,¹⁹ with the familiarity of using the child's name, by introducing the office to the child on the first visit, by the use of body language and honest but appropriate language.^{2,15,19} The choice of language must suit the maturational development of the child so as not to be condescending, and must not carry negative connotations from which a child may assume the worst.^{6,15,19} **Table I** provides a list of euphemisms that may be used when dealing with preschoolers.

Further considerations regarding language involve the careful use of questioning. When asking a child to do something, the question should not be worded in such a way as to allow the child to answer "no". Similarly, when trying to involve the child in a discussion; for example, as a distraction technique, the questions should be open-ended and not allow a "yes/no" response.¹⁶

Another aspect of empathetic treatment is to allow the child to openly express his/her fears. The dental team must be very careful not to reject these expressions of fear or concern. Rejecting a child or their fears is a very rapid method of building mistrust.¹⁴ Although the dental team should allow the child freedom of expression, an assessment must be made as to whether or not this is genuine or a delaying and avoidance tactic. It is vitally important that acceptable behaviour is

encouraged by positive reinforcement (compliments) at the time of its appearance in order to accomplish behaviour shaping.^{2,16} Conversely, unacceptable behaviour is discouraged and the child should be so informed.¹⁴

Management techniques

Most children treated in dental offices are co-operative and relaxed. For these children, simple techniques such as Tell-Show-Do or others which require little training are frequently employed with success. Many dentists who treat children will in fact be using some form of many of the techniques which follow in this paper, although they may not be aware of it. Some techniques come relatively easy without any thought, while others require a varying amount of training, practice and concentration. The management techniques are aimed at relieving the fear component of anxiety. Therefore, implicit in this discussion is that good anesthesia must be obtained in order to remove pain input. Confidence and persuasion are invaluable in the management of pain and fear.²

TABLE I

Suggested euphemisms to be used with younger children during dental treatment

Dental Terminology	Euphemism
amalgam	silver filling
radiographic unit	tooth camera
bur	bug chaser
stainless steel crown	shiny cap
caries	tooth bugs
composite	white filling
matrix band	king's/queen's crown
injection syringe	tooth-putter-to-sleep
prophylactic paste	toothpaste
rubber dam	raincoat
handpiece	whistle

i. Separation from parent

Some children will behave best with parent present, while others will not. The decision to either include or exclude a parent from the operatory rests with the individual practitioner and his/her staff. In a survey of 120 diplomates of the American Academy of Pediatric Dentistry²⁰ only six said they always allow parents into the operatory. Ninety-seven admitted parents in selected cases and 18 refused entry to parents under all circumstances.

Limited research has been conducted on parental presence in the operatory and its effect on the behaviour of the child. The results of the few studies which have been carried out are equivocal. Pfefferle et al.,²¹ Lewis and Law,²² Venham et al.,²³ and Venham,²⁴ found that the presence or absence of the parent had no effect on the frequency of observed negative behaviour in children receiving dental treatment. However, Frankl et al.,¹⁰ and Olsen,²⁵ found that the presence of the mother resulted in a significant increase in co-operative behaviour. The fact that no clear results have been obtained from these research projects is interesting in light of the very definite opinions which many practitioners hold regarding parental presence in the operatory.

Developing an office policy on parental presence in the operatory and separation of the parent from the child is important for successful behaviour management. The advantages of separating parent and child have been summarized by Starkey²⁶ and include:

The parent often repeats orders creating an annoyance for both the dentist and child.

The parent injects orders becoming a barrier to the development of rapport between the child and the dental staff.

The dentist is unable to use voice intonation in the presence of the parent because he or she may be offended.

The child divides attention between the parent and the dentist.

The dentist divides attention between the parent and the child.

Separation strategies should be discussed with the parent prior to the appointment series so that the parent is properly prepared for what may ensue. A well prepared parent is more likely to be accepting and supportive of separation.^{2,26} In addition, separation strategies should be discussed and developed with office staff, since in the majority of cases the dental assistant or hygienist will be responsible for effecting a co-operative separation or a forceful uncooperative separation.

Generally, the dental staff should seek to minimize the disruption which may occur with separation. This may require immediate separation of child from the parent in the reception area followed by rapid transfer of the patient to the operatory. The carrying of a young child and a firm quiet command spoken directly in the child's ear to "stop crying" will initiate behaviour shaping.² An alternative would be to have the parent accompany the child to the operatory and effecting separation away from the reception area.

There are several noteworthy exceptions to a general separation rule. Parents of handicapped children often provide significant assistance to the dental team with communication, interpretation and discipline of their child during a dental appointment and should be admitted to the operatory at least initially. Very young children who are incapable of understanding or of meaningful verbal communication and children who have suffered a traumatic dental injury will frequently derive emotional support from the presence of a parent which frequently translates into more positive behaviour.

There is general agreement among practitioners that should the parent be present in the operatory it is important that the dental team advise the parent how to behave so that optimal communication between the dental team and the child occurs. This usually involves having the parent quietly and passively observe during the appointment. In situations where negative behaviour is either anticipated or occurs, informing both child and parent beforehand that the parent may be asked to leave should the child's behaviour become negative can be a strong incentive for good behaviour.^{2,10,16}

ii. Tell-Show-Do (TSD)

Addelston²⁷ has been credited with formalizing this technique. TSD is considered to be a component of behaviour shaping which by definition is a procedure which very slowly develops behaviour by reinforcing 'successive approximations of the desired behaviour until the desired behaviour comes to be'.² The procedure to be accomplished should be explained to the child in age-appropriate language. One by one, instruments and materials to be used in carrying out the procedure are introduced and demonstrated to the child.^{6,15,16} Often the child will want to hold instruments as well. Allowing the child to hold a mirror and observe while the dental team works intraorally can be a significant reinforcer of the extraoral TSD demonstrations. Formidable procedures (e.g. local anesthesia) and those which defy a simple explanation (e.g. pulp extirpation) may be attempted without Tell-Show-Do.² Murphy et al.²⁸ found that TSD was rated the most acceptable behaviour management technique employed in the dental treatment of three to five-year-old-children by parents who watched videotaped segments of their children receiving dental care.

iii. Structuring

Structuring of the dental appointment is an effective way of offering dental care to

a child who may be a potential behaviour management problem. In a sense it can be considered a way of establishing behavioural guidelines which the child is capable of understanding. This technique lets the child know what to expect, what is expected of him/her and the logical consequences of their behaviour, positive or negative.^{14,16} The child is told the specific goals for the visit in simple language and these are broken down into sub-goals which are given as each procedure is undertaken. Verifying the child's comprehension of the explanation of the behavioural guidelines is an essential part of the communication process. The sub-goals should be accomplishable in a relatively short time frame, which is also given to the child in terms he/she can relate to, so that the child can look forward to the end of the procedure. To further assist this stepping through the appointment, the dentist tells the child when the procedure is initiated and when it has been completed. The child is also prepared prior to each new sensation. At the end of the appointment the dentist informs the child of when the next appointment will be and what will be done at that time.^{14,16}

iv. Voice control

This technique is used by all people, including children, in normal day-to-day conversation. Therefore, its use to manage children in the dental office should be relatively easy for the majority of practitioners. However, it is difficult to define what is meant by voice control in the dental setting without actually demonstrating the technique. Sudden, firm commands with raised voice can be a helpful way of securing a child's attention or expressing displeasure with his/her behaviour. Conversely, a soft monotone voice can be used to soothe a disturbed, crying child. Sensitivity to the child's emotional state is important. Voice control is likely to be more successful with a loud, disruptive child than a fearful, timid one. Many dentists use voice control as the first approach to gaining control of a problematic child. Chambers²⁹ has suggested that the technique is most effective when used as an attention-getter which precedes other messages. Murphy et al.²⁸ stated that the content of the message is not as crucial as the abrupt or sudden nature of the command. She found that voice control was considered an acceptable technique by parents who were shown videotaped examples of specific behaviour techniques.

v. Physical restraint

Physical restraint is an alternative

method for handling problematic children and is often employed in the behaviour management of the very young child or mentally or physically handicapped child, both situations where the patient may not be capable of understanding verbal instructions or demonstrations or be incapable of sitting still in the dental chair. It may be used when voice control has failed, or when communication problems make voice control unfeasible. It includes mouth props, holding of the child's hands, arms and feet by the assistant or parent, straps in the chair or devices such as the "Papoose Board" and "Pedi-Wrap".³⁰

The mouth prop is recommended for some children at times of injection, for stubborn or defiant children, for the mentally or physically handicapped child and for the very young child who will be fatigued with time.³⁰ Besides the commercially available props (Molt and McKesson bite block), the dentist may tape several tongue blades together to be used as a prop during injection. The tongue blades are placed contralateral to the injection site by the assistant who stands behind the child and restrains the child's head with both hands.

When a child is physically restrained by the assistant, often more than one individual is required for adequate restraint; i.e. one is required for head control and another for control of the hands, arms and legs. The child's hands should be crossed over each other and held on his/her lap, again using two hands. Restraint by the assistant was considered more acceptable than restraint by the dentist in the study by Murphy et al.^{28,31} and was considered more acceptable than restraint by a papoose board. Asking a parent to restrain the child is usually limited to very young children for examination and radiographic procedures. In these instances, the parent sits either in the dental chair with the child in the lap or sits knee-to-knee with the dentist controlling the child's limbs while the dentist controls the head. With the parent and child in the dental chair, one hand of the parent holds the child's crossed hands on his lap and the other hand holds the child's forehead.³⁰ This is modified if the parent is holding the radiographic film in place.

Papoose Boards* and Pedi-wraps + are commercially available devices for patient restraint and are available in several different sizes for use with small pre-schoolers to large disabled children. In the study by Murphy et al.,²⁸ the Papoose

* Olympic Medical Co., Seattle, Wash.

+ Clark Associates, Worcester, Mass.

Board was the behaviour management technique most often judged totally unacceptable regardless of the treatment to be delivered. Another alternative for small children is to wrap them in a blanket or sheet.³⁰ If a restraint device is to be used, its application should be explained to the parent prior to its use and the parent's permission for its use recorded in the dental chart.

vi. Hand-Over-Mouth exercise

The Hand-Over-Mouth technique (HOM) has been described as an aversive form of behaviour modification.² However, aversive stimuli have been described by Rimm and Masters³² as those which cause extreme discomfort such as electric shock, paralyzing drugs or noxious images. If a stimulus is applied with excessive force or in a punitive manner it could be regarded as aversive. Thus if a dentist were to apply HOM punitively with excessive force it could be regarded as aversive. Rather, HOM should be regarded as a flooding technique that attempts to disrupt maladaptive learning by preventing escape and avoidance, and by keeping the child in contact with the stimuli that elicit the negative behaviour until the arousal disappears.³³ They caution that flooding procedures do not provide patients with new adaptive behaviours to be used in place of those that are extinguished. Unlike HOM, Hand-Over-Mouth-Airway-Restricted (HOMAR), better fits the definition of aversive conditioning since restricting a child's airway could be uncomfortable.

A child's uncooperative, tantrum-like behaviour can be considered avoidance behaviour; the child is attempting to delay or avoid treatment. Delaying or rescheduling treatment for this kind of child, as some dentists are likely to do, only results in reinforcing the avoidance behaviour and strengthens the probability that it will occur again in a more severe form.³³ The major therapeutic objective of HOM is to prevent avoidance responses to the dental situation so that the child learns the disruptive avoidance response will not succeed, is inappropriate, and that anxiety provoking stimuli are actually far less noxious than imagined.³⁴ In other words, the technique is used to gain the attention of the child and establish communication and cooperation. While it is widely accepted and used in pediatric dentistry practices²⁰ and is taught by nearly 90 per cent of post-graduate pediatric dental programs,³⁴ its use has become increasingly controversial and some strongly oppose its use. Murphy et al.²⁸ and Fields et al.³⁵ found

that it was viewed by the majority of parents as totally unacceptable in the majority of cases.

It is important to stress that HOM and HOMAR are used only as a last resort. Levitas³⁶ describes the effort he exerts when attempting to secure a child's attention: "I cajole. I plead. I beg. I urge. I order the child to listen to me." In many instances he has found that this is sufficient to secure cooperation. When it is clear that communication has not been established HOM or HOMAR can be used. Hagan et al.³⁷ and Bowers³⁸ have stated that any departure from the accepted application of this technique could expose the dentist and dental team to legal liability. Thus it is extremely important that the dentist understand the correct use of HOM and HOMAR.

The technique can be briefly summarized: The child should be firmly placed in the dental chair with the dentist and assistant positioned on either side. Restraint may be necessary if the child flails about in the chair or kicks and strikes out. The restraint is necessary to protect both the child and dental staff from injury and should be explained to the parent as such. Should this disruptive, hysterical behaviour continue, attempts at communication will be virtually useless. Placing a hand over the child's mouth stifles the noise and allows the dentist to speak quietly but firmly into the child's ear: "I want you to stop crying and making a noise. I want to look at your teeth. When you are quiet I will take my hand away. Are you ready to stop?" This approach will often surprise the child and a sudden change in behaviour may occur as a result. Before removing the hand the dentist reiterates a caution for quiet.³⁶ On removal of the hand, the dentist should compliment the child for the improved behaviour.³⁶ Occasionally the child may resume the unacceptable behaviour on hand removal, screaming "I want my mommy" or something to that effect. Replacing the hand over the mouth, the dentist repeats the statement to stop screaming and tells the child that "mommy will be back when we are finished. Okay? I want you to stop screaming. When you are quiet I will take my hand away".³⁶ When the child behaves after the hand has been removed the child is praised for the good behaviour.³⁸ Levitas says that in addition to not showing anger, the dentist should behave afterwards as if nothing happened.³⁶

An important aspect of HOME is the selection of patients on whom HOM or HOMAR will be used. The child must comprehend the instructions and be capable

of cooperating. Therefore, HOM and HOMAR are not acceptable for the very young, the immature, those with serious physical handicaps or those who are mentally retarded or emotionally disturbed.^{2,20,34,36} In general, children who demonstrate hysterical, defiant or aggressive behaviour and are between the ages of three to six years are the primary recipients of this technique. It should not be used on fearful, timid children or those outside of this age range.^{2,36,38} Levitas has stated "there really is only one purpose for HOME — to gain the attention of the child so that he can listen to what is being said and receive the dental care he needs".³⁶

Techniques such as Hand Over Mouth Airway Restricted (HOMAR) are more radical and are highly controversial.^{2,28,37,38} This variation of HOM involves placing the hand over the mouth and closing the nostrils with the thumb and forefinger thereby closing the airway. The need for restriction of the airway usually is only necessary in situations where HOM has been unsuccessful. There is no general agreement as to how many attempts should be made with HOM before HOMAR is used. Nonetheless, common sense would dictate at least two or three attempts with HOM before resorting to HOMAR. The use of HOMAR would therefore be restricted to only the most defiant and extremely resistant children on whom HOM had failed.

The legality of the Hand Over Mouth technique has been discussed by Bowers³⁸ and Hagan et al.³⁷ Bowers points out that the use of HOM and HOMAR is a customary dental practice and a technique used by a reasonable dentist.^{2,6,20,30,34,36,39} However, each technique may carry different liabilities.^{37,38} The use of HOM will not subject the dentist to liability when it is used properly and parental consent to treat the child is obtained.^{37,38} Express parental consent for the use of HOM may not be necessary because HOM can be viewed as an inseparable component of the treatment of certain children.³⁸ The use of HOMAR is more legally suspect because closing the child's airway can be perceived harshly. Unlike HOM, HOMAR may be viewed more frequently as punishment and the legal view of its use, without express parental consent, could be based on the perceived severity of the remedy for the child's misbehaviour.^{37,38} Therefore, the safest course for the dental team is to inform the parent and obtain express parental consent before use of either technique. In fact this principle applies to all types of behaviour manage-

ment techniques which the dentist may employ and which may be viewed as unacceptable by parents e.g., physical restraint, sedation and general anesthesia.³⁷

In some cases HOM may be necessary for the management of a child who was previously cooperative but for some inexplicable reason has become extremely negative. Since this is unexpected and often disconcerting to the dental staff, the dentist may have to calm the child immediately and inform the parent of the use of HOM at the end of the appointment. While disclosing the use of HOM to the parents after its use is good ethics, it is not a legal defence.³⁸ However, a sincere, post-treatment conversation with the parent, including disclosure of the use of HOM and discussion as to why the child behaved negatively, should emphasize that the technique has been used for the safety and well-being of the child and to ensure that high quality treatment has been delivered safely.

Wright² has outlined 'the ideal sequence' for the use of HOM/HOMAR:

- Identify the potential child behaviour problems beforehand.

- Alert the parent to the possible use of the technique.

- Obtain parental consent.

- Apply the technique, converting the extremely negative and uncooperative child into a cooperative one.

- Demonstrate to the parent a good dentist-patient relationship.

vii. Time out for parental disciplinary action

Instead of using HOM, some practitioners suggest stopping treatment, explaining the difficulties to the parent, asking for suggestions on how to proceed, and leaving the parent and child alone for a period of time to discuss the behavioural difficulty.³⁹ Based on learning theory, this technique may have the reverse undesired effect of reinforcing and strengthening the avoidance behaviour. As a result, some parents may in return request to have the child treated under general anesthetic or sedation, which carries with it an entirely new set of emotional as well as physical risks.

viii. Externalization techniques

The use of distraction techniques is recommended by many. However, research in this area indicates that as a child learns what happens during a dental appointment, he/she learns to anticipate the next step in the appointment, be it pleasant or unpleasant. The result is that the child, in anticipation of the next step, will not

TABLE II

Coping strategies and examples of the dentist's behaviour to assist in assimilation

Coping Strategy	Dentist's Behaviour
1. Distraction/Displacement	Talk to patient about hobbies, or just babble
2. Expressive communication (Verbalizing fear)	Ask what the patient is feeling, or describe what you think they feel
3. Relinquishing control to authority figure	Display confidence
4. Gaining manipulative control over source	Tell patient that if something bothers them to put up their hand like this (demonstrate a safe way) Tell patient to count to 10 with you as you go through the procedure, finishing at the end of the count Give patient a mirror to watch with Structured choices, e.g. "Would you like orange or strawberry flavour?" "Would you like to play with my chair?"
5. Affiliation	Be empathetic
6. Conscious instruction to oneself	Tell patient to "Breathe deep", or "Relax"
7. Mental rehearsal	Inform patient of the steps to be performed prior to the procedure, and use Tell-Show-Do

allow the staff to distract him/her on subsequent occasions.^{16,40} Distraction techniques, such as deep breathing exercises and visually concentrating on a focal point, have been successfully employed in the Lamaze method of childbirth to reduce discomfort. These same methods can be employed with children to distract their attention away from the discomfort of local anesthesia administration or other painful dental procedures which are of relatively short duration.¹ Application of these measures requires a child who is anxious but potentially cooperative and should be preceded by brief practice sessions.

A second form of externalization that is often effective is involvement.^{14,16} This is accomplished by allowing the child to watch the procedure by holding a hand mirror. Some clinicians are of the opinion that this should be limited to less traumatic procedures, afraid that a child may focus on blood present in the operative field.^{41,42}

ix. Contingency management

Without a doubt contingency management should be practised on all children. Contingency management is the presentation of positive reinforcers or withdrawal of negative reinforcers. While the critics may feel this is a form of bribery, psychologists distinguish between the two, since bribery is a motivator to perform bad behaviours, while reinforcers

are contingent upon good behaviour.¹⁴ Of the three types of reinforcers, the simplest to use with proper time dependency is the social reinforcer. There are in the form of praise, positive body language, nearness and physical contact. The material and activity reinforcers often lag too far behind the proper behaviour during dental treatment to be related contingently in the child's psyche. For this reason Shapiro⁴³ suggested the preop gift as being more effective than the postop gift. This definitely alleviates the problem of reinforcing bad behaviour exhibited during the session by giving the child a gift.

x. Assimilation

While fear of the unknown is the greatest contributor to anxiety in children, there will be some anxiety due to pain during some procedures. Good anesthesia practices must not be overlooked. Since pain consists of both a stimulus and a perception and since the perception level is easily modulated either up or down, it is this level which is of greater importance. The effectiveness of placebos is a testimony to this statement. As Baldwin and Weisenberg⁴⁴ state, the management of pain requires persuasion, and therefore trust and belief in the operator's abilities are essential.

Stress can act to increase pain perception, while coping decreases it by a process called assimilation. Coping initially acts directly upon our perception, but

indirectly, and on a long-term, acts upon the stress levels. Therefore, having correctly coped with something, we are more likely to enter the next similar situation with lower stress levels, therefore requiring less assistance in the coping strategy. On the other hand unsuccessful attempts can increase our stress level for the next situation, and perhaps this is responsible for the process of sensitization. Clinically we may observe the child to have successfully coped with the situation, but perhaps the pain level was above the child's expectations so that on the next occasion there is a heightened anxiety level.

For fearful, anxious patients who lack the coping skills there are several behaviour modification techniques available (Table II). The techniques all require some time and skill. The one selected depends upon the patient to some degree, but the effectiveness is mostly dependent upon the clinician's belief in the method, since there is a large component of suggestiveness.^{44,45}

xi. Modelling

In its simplest form, the modeling technique is easy to use in a dental clinic. The apprehensive child is brought into the operatory to watch another person successfully undergoing dental treatment. Multiple models of like age are considered by some to be better, so that the child does not perceive a single model as "special" and so that various alternative coping strategies are displayed.⁴⁶ According to Adelson and Goldfried,⁴⁷ the most effective use of modeling is when the observer is aroused, the model has prestige and status and positive consequences are displayed. For example, Melamed and co-workers⁴⁸ used peer models on videotape and found modeling to be effective only when the children were actively involved in the tape. The children who actively practised the coping strategies being displayed were more likely to use them during their dental treatment. The prestige of the model is significant; however if the younger sibling is less anxious, using him as the model will give the older more anxious sibling the attitude of "Well, if he can do it then I can too".⁴⁶ Rewarding the model for the proper behaviour makes the chances of imitation more likely.^{3,47} According to some studies, boy models were effective for girls; however girl models do not work for boys.³

xii. Systematic desensitization

Using systematic desensitization, a patient is gradually worked through the

hierarchy of stimuli from what they consider to be least anxiety provoking to the most fearful stimuli.^{3,16,44} Teaching the patients some coping strategy or assimilation technique allows them to practise it at each step, decrease the anxiety and demonstrate they can get through each procedure.¹⁶ Deep breathing, muscle relaxation and imagery are most often used in the training procedure.¹⁶ Desensitization is a slow process and few dentists are able to spend time helping the anxious patient in this manner, so some authors recommend combining it with modeling³ and contingency reinforcement⁴⁹ and/or doing it for groups of children at a time.³ Getz and co-workers⁴⁵ state that the technique is effective even with young children, by using the appropriate imagery for the child, and they report using it successfully with a four-year-old.

xiii. Cognitive mechanisms

The perception of pain varies when one of the following cognitive variables is utilized: (a) instruction, (b) distraction, (c) denial, (d) intellectualization in order to reinterpret the situation.⁴⁴ None of these appear to be very effective with most children. Distraction is reported as having limited effectiveness,¹⁴ the other three systems only work with more mature children experiencing only limited anxiety levels.

xiv. Other methods

More exotic methods such as relaxation therapy, placebos, hypnosis, biofeedback, acupuncture and audioanalgesia are other options.^{14,41,50} These techniques are generally more suitable for adults or special clinical settings rather than the treatment of children in general practice.

vi) Summary

Occasionally the child will neither have previous experience with a dentist nor have been exposed to the attitudes of others. In this case the dentist only has to worry about the child's fear of the unknown. Managing this is relatively easy in comparison to those who have had prior bad experiences or have been influenced by their parents', siblings' or peers' fears. For the non-problematic child, the management techniques are largely based on communicative skills, starting at first contact with the parents or guardian.

Of course even problematic children should be handled in like manner during the non-episodic times. As an initial

assessment of possible problematic children, the dentist should determine to what extent the child is fearful, incorrigible and over-indulged. When episodes occur, the management procedure should address the culprit. If it is fear alone, the child can be taught to cope with the situation through any of the behaviour modification techniques, ideally in a preventive manner. The specific technique used is the operator's preference, since they all depend upon a high degree of suggestibility. The operator must be confident in his choice but keep in mind that a certain amount of maturity is required of the child for successful use of these techniques.

At no time should the dentist display emotions that can be construed as malice. An overworked, tired, time-pressured dentist would be better to end the session and start fresh on another occasion. However, the child must not become aware that the dentist is "quitting" the struggle. When the child returns to a productive, positive behaviour it should be positively reinforced by praise and other social reinforcers.

The time and effort required to treat children and the desire to teach them coping strategies will be rewarded in the long run. They will remain as your patients. Δ

Dr. Piedalue is at present on the staff of Baie Verte Peninsula Health Centre, Baie Verte, Nfld.

Dr. Milnes is Head of the Department of Pediatric Dentistry, University of Manitoba, Winnipeg, Man.

Reprint requests to: Dr. Milnes, University of Manitoba, Faculty of Dentistry, Department of Preventive Dental Science, 780 Bannatyne Avenue, Winnipeg, Man. R3E 0W3.

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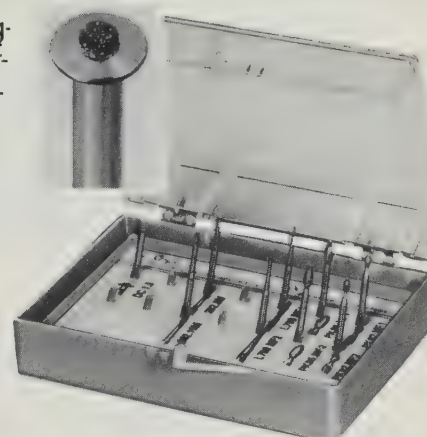
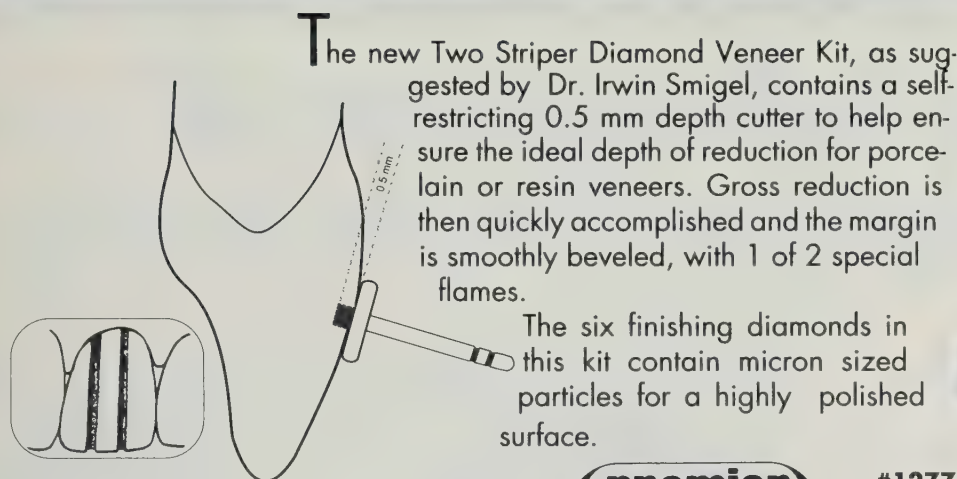
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Non-syndrome multiple supernumerary teeth: Literature review

W.Z. Yusof
Malaysia

ABSTRACT

Multiple supernumerary teeth without any associated systemic conditions or syndromes are not common. The author reviewed most of the cases reported in the English-language literature from 1969 to the present. It was found that there was a predilection of non-syndrome multiple supernumerary teeth to occur in the mandible. When analyzed according to specific sites for both jaws, there was a predominance of the multiple supernumerary teeth to occur in the premolar area, followed by the molar and the anterior regions respectively. The mandibular premolar region had the highest frequency of occurrence for both jaws combined.

SOMMAIRE

Il est rare de voir chez un sujet des dents surnuméraires multiples sans qu'y soient associés des états ou des syndromes systémiques. L'auteur a révisé la plupart des cas signalés dans les publications de langue anglaise de 1969 à nos jours, et il a découvert que les dents surnuméraires multiples reliées à aucun syndrome se trouvent dans la mandibule. Quant aux endroits précis des deux mâchoires où elles se produisent, la région des prémolaires vient en premier, suivie par celle des molaires puis par celle des dents antérieures. Pour les deux mâchoires ensemble, c'est la région prémolare de la mandibule où le phénomène se produit avec la plus haute fréquence.

Introduction

Supernumerary teeth means extra teeth, ie. more than the number of the full complement of teeth in the primary or permanent dentition.¹ Their shape and size may resemble the group of teeth at the site where they are found in

the jaws or there may be little or no resemblance at all.

Literature Review

Several theories have been suggested for the occurrence of supernumerary teeth, from the phenomenon of atavism² to abnormal activity of the dental lamina which results in the formation of extra tooth buds by additional formation or splitting of the existing ones.^{3,4} Farmer and Lawton⁵ suggested the possibility of a supernumerary tooth arising from clumps of remaining epithelium after the breaking up of the tooth band and becoming activated to tooth formation. The association of heredity has also been suggested.⁶

The prevalence of supernumerary teeth on a population basis ranges from 0.1 per cent to 3.6 per cent or even higher.^{7,8} This depends on how the studies were carried out, ie. whether dental radiographs were utilized and also whether the material included patients referred for treatment of supernumerary teeth and associated sequelae. In a survey of 50 cases with supernumerary teeth, it was found that 14 per cent of these cases had multiple supernumerary teeth.⁹ A high occurrence rate of 21.2 per cent has been reported in Gardner's syndrome, where the presence of multiple supernumerary teeth is one of the characteristic features of this condition.¹⁰ This feature is also seen in cleidocranial dysplasia¹¹ but there are no published figures for supernumerary teeth in this syndrome. Patients with cleft lip or palate have a prevalence rate of 28 per cent for supernumerary teeth.¹²

The anterior maxillary region appears to be the site of predilection for supernumerary teeth.^{13,14} There is also a 10-fold frequency of occurrence in the maxilla.^{11,14,15} The second most frequent site is the distal of the maxillary third molar.¹¹

Multiple supernumerary teeth are not a common occurrence, although a single or a few supernumerary tooth/teeth in each

case have been widely reported in the literature.^{14,16} It is also rare to find multiple supernumerary teeth in individuals with no other associated diseases or syndromes.¹⁷ It has been established that there is an association between multiple supernumerary teeth with cleidocranial dysplasia,¹⁸ Gardner's syndrome,^{19,20} and in patients with cleft lip and palate.¹²

Most of the published cases of non-syndrome multiple supernumerary teeth with more than five in number in the English language literature since 1969 were reviewed. Only those cases where the exact locations of the supernumerary teeth were stated or could be determined from radiographs were included for analysis, as shown in **Table I**. The results of this analysis are shown in **Tables I** and **II**. Those cases where the number of supernumerary teeth was stated but their exact locations could not be determined from radiographs are listed in **Table III**.

Two other cases not listed in the tables above need mentioning. Duffy³² reported a case of a 23-year-old male where the exact number of multiple supernumerary teeth was not stated but many were shown in the radiographs. Rosenthaler and Beiderman³³ reported another case of bilateral maxillary fourth molars and multiple supernumerary premolars in all the four quadrants in a 26-year-old female. Here too the exact number was not stated and the locations could not be determined.

Discussion

Analysis of the 11 cases shown in **Table I** revealed a male-to-female ratio of 9:2. This might be a coincidence since the sample is small and does not mean that there is a predilection of non-syndrome multiple supernumerary teeth to occur in males. The mean age of the patients reported was 21.3 years and ranged from seven to 39 years. This only reflects the age when these supernumerary teeth were detected.

Spouge¹⁵ stated that almost a ten-fold frequency of supernumerary teeth occurred in the maxilla. In this present

review, 60.9 per cent or 53 out of a total of 87 multiple supernumerary teeth were found in the mandible with 39.1 per cent or 34 out of 87 in the maxilla. When analyzed according to groups of teeth or locations, 62.1 per cent (54/87) were found in the premolar region, 27.6 per cent (24/87) in the molar region and only 10.3 per cent (9/87) in the anterior region, as shown in **Table II**. The frequency of occurrence was highest in the mandibular premolar region, with 44.8 per cent (39/87) of all multiple supernumerary teeth occurring at this site.

It is interesting to note the findings in **Table II**. Compared to supernumerary teeth found in small numbers or singly in an individual where the predilection is the maxillary anterior¹³ followed by the maxillary molar region,¹¹ non-syndrome multiple supernumerary teeth seem to occur more in the mandibular premolar region. Though the mandible is a frequent site for isolated supernumerary premolar, its occurrence compared to supernumerary anterior and molar teeth is not common as a whole.¹ Thus, this might represent a characteristic feature in patients with non-syndrome multiple supernumerary teeth.

The total number of supernumerary teeth from the six cases listed in **Table III** were 92, compared to 87 from 11 cases listed in **Table I**. If their locations could have been determined, the findings in **Table II** might have been different.

Conclusions

Based on the findings from 11 cases of non-syndrome multiple supernumerary teeth with a total number of 87, it is concluded that:

1. The mandible is a much more common site for the occurrence of non-syndrome multiple supernumerary teeth compared to the maxilla.
2. There is a predilection of the premolar region.
3. The mandibular premolar region has the highest frequency of occurrence for both jaws combined. Δ

Dr. Yusof is a lecturer in the Department of Oral Pathology and Oral Medicine, Dental Faculty, University of Malaya, 59100 Kuala Lumpur, Malaysia.

Reprint requests to Dr. Yusof.

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TABLE I

Data of 11 cases of non-syndrome multiple supernumerary teeth where the locations were known

Case	Author	Sex	Age	Number*	Location*				
1.	Ruprecht et al ¹⁴	M	39	5	PM(1)	PM(1)			
					PM(1)	PM(1)	M(1)		
2.	Shusterman et al ¹⁶	F	7	6	PM(1)	A(2)	PM(1)		
						A(2)			
3.	Shapira ²¹	M	29	6	PM(3)	PM(3)			
4.	Schofield ²²	M	23	5	M(2)			M(1)	
					M(1)			M(1)	
5.	Barnett ²³	M	12	6	M(1)			M(1)	
					M(1)	PM(1)	PM(1)	M(1)	
6.	Finkel et al ²⁴	M	24	9	M(1)	PM(1)		M(1)	
					PM(3)	PM(2)	M(1)		
7.	Stevenson and McKechnie ²⁵	M	10	11		A(5)	PM(1)		
					PM(2)	PM(3)			
8.	Reichart ²⁶	M	18	7	PM(2)	PM(2)			
					PM(2)	PM(1)			
9.	Leslie ²⁷	M	25	6		PM(1)	M(1)		
					M(1)	PM(1)	PM(1)	M(1)	
10.	Yusof and Awang ²⁸	M	24	16	PM(1)	PM(2)	M(2)		
					M(1)	PM(4)	PM(4)	M(2)	
11.	Yusof and Awang ²⁸	F	23	10	M(1)	PM(1)		M(1)	
					PM(3)	PM(3)	M(1)		
M:F = Mean: Total =					M(5)	PM(7)	A(7)	PM(8)	M(7)
9:2 23:1 87					M(4)	PM(20)	A(2)	PM(19)	M(8)

* Number of supernumerary teeth.

+ Location of supernumerary teeth in the jaws.

A - Anteriors.

PM - Premolars.

M - Molars.

Numbers in parentheses represent the number of supernumerary teeth at each location.

TABLE II

Distribution of 87 supernumerary teeth in 11 patients from Table I

According to jaws	Maxilla	-	39.1% (34/87)
	Mandible	-	60.9% (53/87)
According to group of teeth/sites	Anteriors	-	10.3% (9/87)
	Premolars	-	62.1% (54/87)
	Molars	-	27.6% (24/87)

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TABLE III

Data of 6 cases of non-syndrome multiple supernumerary teeth where the exact locations were not known

Case	Author	Sex	Age	Number*
1.	Foley and Del Rio ³	M	22	14
2.	Shusterman et al ¹⁶	M	11	8
3.	Smith ²⁹	M	21	19
4.	Nelson ³⁰	M	22	7
5.	Mercuri and O'Neill ³¹	F	17	27
6.	Mercuri and O'Neill ³¹	F	15	17
				Total: 92

* Number of supernumerary teeth.

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Advil[®] should not be taken by patients with active peptic ulcer disease or gastrointestinal bleeding unless directed by a physician.

WARNINGS Anaphylactoid reactions have occurred in patients with known ASA hypersensitivity (see Contraindications).

Peptic ulcerations and gastrointestinal bleeding, sometimes severe, have been reported in patients receiving prescription doses of ibuprofen. Peptic ulcerations, perforation, or severe gastrointestinal bleeding can have a fatal outcome, and although few such reports have been received with ibuprofen, a cause and effect relationship has not been established. Patients with a history of upper gastrointestinal tract disease should take Advil[®] under the supervision of a physician.

Like other nonsteroidal anti-inflammatory agents, ibuprofen can inhibit platelet aggregation. However, compared to ASA, the effect is quantitatively less, of shorter duration, and reversible upon discontinuation of ibuprofen. Bleeding time has also been prolonged by ibuprofen though within the normal range in normal subjects. Because this effect on bleeding time may be exaggerated in patients with underlying hemostatic defects, Advil[®] should be avoided by persons with intrinsic coagulation defects and those on anticoagulant therapy.

PRECAUTIONS Conditions associated with dehydration appear to increase the risk of renal toxicity. Advil should therefore be used with caution in patients with chronic renal failure, congestive heart failure or hypertension being treated chronically with diuretics. Caution should be observed in elderly patients who have diminished renal function.

Patients on Advil[®] should be cautioned to report to their physician if any signs or symptoms of gastrointestinal ulceration or bleeding, blurred vision or other eye symptoms, skin rash, weight gain, edema, tinnitus, dizziness or respiratory difficulties.

If ibuprofen is taken in conjunction with prolonged corticosteroid therapy and it is decided to discontinue the latter therapy, as under other circumstances, the corticosteroid dosage should be tapered off slowly to avoid exacerbation of disease or adrenal insufficiency.

DRUG INTERACTIONS

Coumarin-type anticoagulants: Several short-term controlled studies failed to show that ibuprofen significantly affected prothrombin time or a variety of other clotting factors when administered to individuals on coumarin-type anticoagulants. The physician should be cautious when administering Advil[®] to patients on anticoagulants. **ASA:** Animal studies show that ASA given with nonsteroidal anti-inflammatory agents including ibuprofen yields a net decrease in anti-inflammatory activity with lowered blood levels of the non-ASA drug. Single dose bioavailability studies in normal volunteers have failed to show an effect of ASA on ibuprofen blood levels. Correlative clinical studies have not been conducted. **Other Anti-inflammatory Agents (NSAIDs):** The addition of ADVIL[®] to a pre-existent prescribed NSAID regimen in patients with a condition such as rheumatoid arthritis may result in increased risk of adverse effects. **Diuretics:** Because of its fluid retention properties, high doses of ibuprofen can decrease the diuretic and antihypertensive effects of diuretics, and increased diuretic dosage may be required. Patients with impaired renal function who are taking potassium-sparing diuretics should not take ibuprofen. **Acetaminophen:** Although interactions have not been reported, concurrent use with ADVIL[®] is not advisable. **Other Drugs:** Although ibuprofen binds extensively to plasma proteins, interactions with other protein-bound drugs occur rarely. Nevertheless, caution should be observed when other drugs, also having a high affinity for protein binding sites, are used concurrently. Some observations have suggested a potential for ibuprofen to interact with furosemide, pindolol, dipoxin, phenytoin and lithium salts. However, the mechanisms and clinical significance of these observations are presently not known. No interactions have been reported when ibuprofen has been used in conjunction with hypoglycemics, probenecid, digitalis, thyroxine, steroids, antibiotics or benzodiazepines.

ADVERSE REACTIONS The following adverse reactions have been noted in patients treated with prescription regimens of ibuprofen: **Note:** Reactions listed below under Causal Relationship Unknown are those which occurred under circumstances where a causal relationship could not be established. However, in these rarely reported events, the possibility of a relationship to ibuprofen cannot be excluded.

Gastrointestinal: The adverse reactions most frequently seen with prescribed ibuprofen therapy involve the gastrointestinal system. Incidence 3 to 9%: nausea, epigastric pain, heartburn. Incidence 1 to 3%: diarrhea, abdominal distress, nausea and vomiting, indigestion, constipation, abdominal cramps or pain, fullness of the gastrointestinal tract (bloating or flatulence). Incidence less than 1%: gastric or duodenal ulcer with bleeding and/or perforation, gastrointestinal hemorrhage, melena, hepatitis, jaundice, abnormal liver function (SGOT, serum bilirubin and alkaline phosphatase). **Central Nervous System:** Incidence 3 to 9%: dizziness, incidence 1 to 3%: headache, nervousness. Incidence less than 1%: depression, insomnia. Causal relationship unknown: paresthesias, hallucinations, dream abnormalities. Aseptic meningitis and meningoencephalitis, in one case accompanied by eosinophilia in the cerebrospinal fluid, have been reported in patients who took ibuprofen intermittently and did not have any connective tissue disease. **Dermatologic:** Incidence 3 to 9%: rash (including maculopapular type). Incidence 1 to 3%: pruritus. Incidence less than 1%: vesiculobullous eruptions, urticaria, erythema multiforme. Causal relationship unknown: alopecia, Stevens-Johnson syndrome. **Special Senses:** Incidence 1 to 3%: tinnitus. Incidence less than 1%: amblyopia (blurred and/or diminished vision, scotomata and/or changes in colour vision). Any patient with eye complaints during ibuprofen therapy should have an ophthalmological examination. Causal relationship unknown: conjunctivitis, diplopia, optic neuritis. **Metabolic:** Incidence 1 to 3%: decreased appetite, edema, fluid retention. Fluid retention generally responds promptly to drug discontinuation (see Precautions). **Hematologic:** Incidence less than 1%: leukopenia and decreases in hemoglobin and hematocrit. Causal relationship unknown: hemolytic anemia, thrombocytopenia, granulocytopenia, bleeding episodes (e.g. purpura, epistaxis, hematuria, menorrhagia). **Cardiovascular:** Incidence less than 1%: congestive heart failure in patients with marginal cardiac function, elevated blood pressure. Causal relationship unknown: arrhythmias (sinus tachycardia, sinus bradycardia, palpitations). **Allergic:** Incidence less than 1%: anaphylaxis (see Contraindications). Causal relationship unknown: fever, serum sickness, lupus erythematosus. **Endocrine:** Causal relationship unknown: gynecomastia, hypoglycemic reaction. Menstrual delays of up to two weeks and dysfunctional uterine bleeding occurred in nine patients taking ibuprofen, 400 mg t.i.d., for three days before menses. **Renal:** Causal relationship unknown: decreased creatinine clearance, polyuria, azotemia. Like other non-steroidal anti-inflammatory drugs, ibuprofen inhibits renal prostaglandin synthesis, which may decrease renal function and cause sodium retention. Renal blood flow and glomerular filtration rate decreased in patients with mild impairment of renal function who took 1200 mg/day of ibuprofen for one week. Renal papillary necrosis has been reported. A number of factors appear to increase the risk of renal toxicity (see Precautions). In comparative clinical trials analyzed by The Boots Company involving 7624 ibuprofen-treated, 2822 ASA-treated and 2843 placebo-treated patients, adverse reactions involving renal function were reported by 0.6% of the ibuprofen group, 0.3% of the ASA group and 0.1% of the placebo group. The analysis included data from trials which employed doses greater than 1200 mg, used for longer periods than OTC recommendations and by patients being treated for serious conditions.

SYMPTOMS AND TREATMENT OF OVERDOSAGE The following cases of overdosage have been reported. A 19-month-old (12 kg) child, presented with apnea, cyanosis and responsiveness only to painful stimuli 1.5 hours after the ingestion of 7-10 400 mg tablets of ibuprofen. After treatment with oxygen, sodium bicarbonate, dextrose and normal saline infusion, the child was responsive and 12 hours after ingestion appeared completely recovered. Blood levels of ibuprofen reached 102.9 ug/mL 8.5 hours after the accident.

Two other children, each weighing approximately 10 kg, had taken an estimated 120 mg/kg. There were no signs of acute intoxication or late sequelae. In one child the ibuprofen blood level at 90 minutes after ingestion was 700 ug/mL.

A 19-year-old male who had taken 8000 mg of ibuprofen over a period of a few hours complained of dizziness, and nystagmus was observed. After hospitalization, hydration and 3 days of bed rest, he recovered without sequelae.

In cases of acute overdosage, the stomach should be emptied by vomiting or lavage, though little drug will likely be recovered if more than one hour has elapsed since ingestion. Because the drug is acidic and is excreted in the urine, it is theoretically beneficial to administer alkali and induce diuresis.

Dosage and Administration Adults and Children over 12: Take 1 or 2 tablets every four hours as needed. Do not exceed six tablets in 24 hours, unless directed by a physician.

Availability Each brown, sugar-coated Advil[®] tablet/caplet contains 200 mg of ibuprofen. Advil[®] tablets are available in bottles of 24, 50 and 100 tablets or caplets and pouches of 2 tablets.

Store at room temperature. Product monograph available to physicians and pharmacists upon request.

References: 1) Schachtel BP, Fillingim JM, Thoden WR, et al.: Sore throat pain in the evaluation of mild analgesics. Clin Pharmacol Ther 1988; 44:704-11. 2) Lanza FL, Royer G, Nelson R: An Endoscopic Evaluation of the Effects of Non-steroidal Anti-inflammatory Drugs on the Gastric Mucosa. Gastrointest Endosc 1975; 21:103-105.

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INDICATIONS AND CLINICAL USE: ZOVIRAX Ointment 5% is indicated for the management of initial episodes of genital herpes simplex infections. It is also indicated in the management of nonlife-threatening cutaneous herpes simplex virus infections in immunocompromised patients. The prophylactic use of this preparation has not been established.

In genital herpes, appropriate examinations should be performed to rule out other sexually transmitted diseases.

These indications are based on the results of a number of double-blind, placebo-controlled studies which examined changes in virus excretion, healing of lesions and relief of pain. Because of the wide biological variations inherent in herpes simplex infections, the following summary is presented merely to illustrate the spectrum of responses observed to date. As in the treatment of any infectious disease, the best response may be expected when therapy is begun at the earliest possible moment.

In immunocompromised patients, 93% were virus negative after 5 days of topical ZOVIRAX therapy, whereas only 35% of placebo recipients were virus negative at the same time.

In patients with herpes labialis, there was a significantly greater decrease in the amount of virus excreted after one day of therapy in those receiving ZOVIRAX within 8 hours of the onset of cold sores when compared to identically treated placebo patients.

Because complete re-epithelialization of herpes-disrupted integument necessitates recruitment of several complex repair mechanisms, the physician should be aware that the disappearance of visible lesions is somewhat variable and will occur later than the cessation of virus shedding. All immunocompromised patients who received topical ZOVIRAX had healed their lesions 23 days after the initiation of a 10-day course of therapy. 75% of placebo patients had healed lesions at that point. Some placebo patients continued to have visible lesions for more than 30 days.

Pain associated with herpes infections is highly variable in frequency and intensity. One hundred percent of the ZOVIRAX-treated immunocompromised patients were pain-free by day 23 versus 70% of placebo-treated patients.

Whereas cutaneous lesions associated with herpes simplex infections are often pathognomonic, Tzanck smears prepared from lesion exudate or scrapings may assist in the diagnosis. Positive cultures for herpes simplex virus offer the only absolute means for confirmation of the diagnosis.

CONTRAINDICATIONS: ZOVIRAX Ointment 5% is contraindicated for patients who develop hypersensitivity or chemical intolerance to any of the components of the formulation, such as polyethylene-glycol.

WARNINGS: ZOVIRAX Ointment 5% is intended for topical use only and should not be used in the eye or on mucous membranes.

PRECAUTIONS: The recommended dosage, frequency of application and duration of treatment of ZOVIRAX Ointment 5% should not be exceeded.

It is not known whether acyclovir is excreted in human milk.

Because many drugs are excreted in human milk, caution should be exercised when ZOVIRAX is administered to a nursing mother.

ZOVIRAX Ointment 5% should be used during pregnancy only if the physician feels the benefit will outweigh the possible harm to the fetus.

Safety of use of ZOVIRAX Ointment 5% in children has not been established.

There exist no data, at this time, which demonstrate that the use of ZOVIRAX Ointment 5% will prevent transmission of infection to other persons.

Since most cutaneous herpes simplex virus infections result from reactivation of latent virus, it is unlikely that ZOVIRAX Ointment 5% will prevent recurrence of infections when applied in the absence of signs and symptoms. ZOVIRAX Ointment 5% should not be applied in an attempt to prevent recurrences: application should commence only at the earliest prodromal sign of disease onset.

Although clinically significant viral resistance associated with the use of ZOVIRAX Ointment 5% has not been observed, this possibility exists.

ADVERSE REACTIONS: Because ulcerated genital lesions are characteristically tender and sensitive to any contact or manipulation, patients may experience discomfort upon application of ointment. In the controlled clinical trials, mild pain (including transient burning and stinging) was reported by 103 (28.3%) of 364 patients treated with ZOVIRAX Ointment 5% and by 115 (31.1%) of 370 patients treated with placebo. Treatment was discontinued in 2 of these patients. Other local reactions among acyclovir-treated patients included pruritus in 15 (4.1%), rash in 1 (0.3%) and vulvitis in 1 (0.3%). Among the placebo-treated patients, pruritus was reported by 17 (4.6%) and rash by 1 (0.3%).

In all studies, there was no significant difference between the drug and placebo group in the rate or type of reported adverse reactions.

SYMPTOMS AND TREATMENT OF OVERDOSAGE: Overdosage by topical application of ZOVIRAX Ointment 5% is unlikely because of limited transcutaneous absorption.

DOSAGE AND ADMINISTRATION: Apply ZOVIRAX Ointment 5% liberally to the affected area 4 to 6 times daily for up to 10 days. A sufficient quantity of ointment should be applied to adequately cover all lesions. A finger cot or rubber glove should be used while applying ZOVIRAX in order to prevent

- (1) autoinoculation of other body sites or
- (2) transmission of infection to other persons

Therapy should be initiated as early as possible following onset of signs and symptoms.

AVAILABILITY: ZOVIRAX Ointment 5% is available in tubes of 4 g and 15 g. Each gram contains 50 mg acyclovir in a polyethylene-glycol base. ZOVIRAX Ointment 5% is for topical administration.

Product Monograph available on request.

Reference:

1. Whitley RJ, Levin M, Barton N, et al: Infections caused by herpes simplex virus in the immunocompromised host: Natural history and topical acyclovir therapy. J Infect Dis 1984; 150:323-329.

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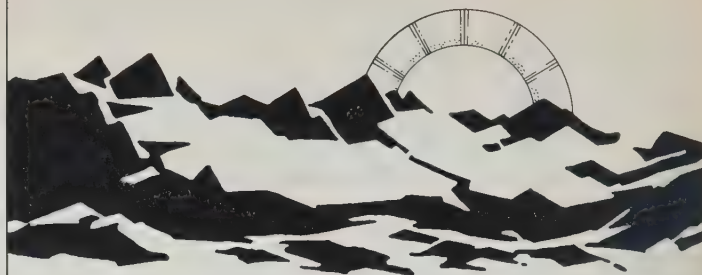
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BERMUDA MEETING



Our annual Bermuda Dental Association
Convention will be held at the
Royal Hamilton Amateur Dinghy Club,
Paget, on July 2nd, 3rd and 4th, 1990.

SPEAKERS:

Kenneth L. Zakariasen, B.A., D.D.S., M.S., Ph.D. Dean & Professor of
Endodontics, Dalhousie University.

Topic: Laser and Endosonic Applications in General Practice Endodontics.

Ian Vogan, B.D.S., D.D.S., Cert. Perio. Associate Professor Periodontics,
Dalhousie University.

Topic: Periodontics. A team approach for you and your Hygienist.

Registration Fee: US\$350.00 includes cocktails, wine and cheese party
on arrival night, coffee and refreshments during lectures and dinner
dance on last evening.

Hotel accommodations should be made as soon as possible with your
local travel agent.

**Send registration and any further queries to:
Dr. Robert E. Gibbons, "Erin", 2 Southcourt Avenue,
Paget PG06, Bermuda, or
phone 809-236-4477.**

Announcements

March/Mars 1990

March 4-7: 67th Annual Session of the American Association of Dental Schools in Cincinnati. For information, contact: American Association of Dental Schools, 1625 Massachusetts Ave NW, Washington, DC 20036, USA. Tel: (202) 667-9433.

March 7-11: International Association for Dental Research in Cincinnati, Ohio. Contact: Ms. Judith A. Gauchel, Scientific Program/Meeting Mgr, 1111-14th St NW, Suite 1000, Washington, DC 20005 USA. Tel: (202) 898-1050.

March 8-9: The 9th Jordanian Dental Congress in Amman. Contact: Dr. Irfan Sultan, Chairman, Scientific Committee, PO Box 1326, Amman, Jordan.

March 9-11: National Conference for the AIDS Caregiver in Canada in Ottawa. For information and registration materials, please contact: Bruce Mills, Conference Facilitator, 1589 St Bernard St, Gloucester, Ont K1T 3H8.

March 14-16: The 4th World Dental Congress of the Egyptian Clinical Dental Society in Cairo. Contact: Prof. Ayd Elahdi Nasif Selim, College of Dentistry, Cairo University, Cairo, Egypt.

March 14-17: Annual Western Canada Dental Bonspiel in Victoria, BC. Information available from: Dr. Rennie Bradley, #305-1830 Oak Bay Ave, Victoria, BC V2R 6R2.

March 16-18: National Conference for the AIDS Caregiver in Canada in Calgary. For information and registration materials, please contact: Bruce Mills, Conference Facilitator, 1589 St Bernard St, Gloucester, Ont K1T 3H8.

March 24-31: 25th International Alpine Dental Conference in Courchevel, France. Contact: LW Bryer, 24 Cadogan Square, London, SW1X 0JP, England.

March 26-30: Hawaiian Symposium on Endodontics & Periodontics sponsored by the Alberta Academy of General Dentistry and the Edmonton Multidisciplinary Dental Study Club. Contact: Dr. Eugene Dalla Lana, 206-1305-11 Avenue SW, Calgary, AB T3C 3P6 or tel: (403) 244-4867.

March 28-30: Big Apple New York Dental Meeting. Contact Dr. Leslie Zucker, 3201 Grand Concourse, Bronx NY 10468, USA.

March 28-31: Annual Dental Meeting of the Finnish Dental Society in Finland. Contact: Taru Ohtola, Training Mgr, Committee for Continuing Education, Akavatalo, Rautatieläisenkatu 6 SF-00520 Helsinki, Finland.

March 29-31: 56th Annual Scientific Meeting of the Danish Dental Association and the Scandinavian Dental Fair SCANDEFA 90 in Denmark. Contact: Danish Dental Association, Committee for Postgraduate Education, 17 Ameliegade, Postbox 143, DK-1004, Copenhagen K, Denmark.

March 31-April 6: Annual Meeting of the Canadian Association of Oral and Maxillofacial Surgeons in Whistler, BC. ORAL IMPLANTS - Trouble shooting for successful attached prosthesis. Contact: Dr. Mike Kaburda, 208-600 Royal Ave, New Westminster, BC V3M 1J3.

April/Avril 1990

April 1-6: VIth World Congress on Pain in Adelaide, Australia. For information: International Association for the Study of Pain, 909 NE 43rd St, Suite 306, Seattle, WA 98105-6020 USA. (206) 547-6409.

April 22-26: 44th Annual Meeting of the American Academy of Oral Pathology at the Princess Resort, San Diego, CA. For further information, contact: Dr. Dean K. White, Secretary-Treasurer, American Academy of Oral Pathology, College of Dentistry, University of Kentucky, Lexington, KY 40536-0084.

April 22-27: 2nd International Dental Congress sponsored by Dental Volunteers for Israel. For information, contact: Aufgang Travel, 3528 Bathurst St, Toronto, Ont M6A 206. Phone (416) 789-7117.

April 25-29: American Association of Endodontists. For more information, contact: Ms. Irma S. Kudo, 211 E Chicago Ave, Suite 1501, Chicago, IL 60611, USA.

May/Mai 1990

May 3-5: ODA Annual Spring Meeting to be held at the Metro Toronto Convention Centre is looking for clinicians. All members of the dental team are invited to participate and share their expertise. For an application form, please contact: Diana Thorneycroft, ODA, 234 St. George St, Toronto, ONT M5R 2P1.

May 4-6: British Dental Surgery Assistants Jubilee Conference in Solihull. For information, contact: DSA House, 29 London St, Fleetwood FY7 6JY, England. Tel: 039-17-78631.

May 16-19: International Dental Congress of the British Dental Association at Barbican Centre in London. Contact: British Dental Association, 64 Wimpole St, London W1M 8A1, England or tel 01 935 0875.

May 16-19: 3rd North Sea Conference on Periodontology in Maastricht, The Netherlands sponsored by the British, Dutch and Scandinavian Societies of Periodontology. For more information, contact: Dutch Society of Periodontology, PO Box 24, 9649 ZG Muntendam, The Netherlands.

May 17-19: Congrès de la Société Suisse d'Odontostomatologie SSO in Montreux, Switzerland. Contact: D' Pierre Spahn, 51 av du Casino, CH-1820 Montreux, Switzerland.

May 20-24: Les Journées dentaires du Québec in Montréal. Contact: Chantal Bally, 625 boul René-Lévesque ouest, Montréal, Qué H3J 1Y2.

May 28-31: The Impact of Lasers on Dental Science in Paris, France. Contact: Lasers 1990 Scientific Secretariat, Faculté de Chirurgie dentaire, 1 rue M. Arnoux, F-92120 Montrouge, France.

June/Juin 1990

June 2-4: XI^{èmes} Journées françaises de Parodontologie in Cannes, France. Contact: Dr. Catherine Mattout, 21 rue Sylvabelle, 13006 Marseille, France.

June 10-13: Alberta Dental Association Convention in Kananaskis. "Start the 90's with a Kananaskis High". For registration, contact: Dr. R.T. Huff, 131 Woodvalley Dr SW, Calgary, ALTA T2W 5Y2.

June 14-15: Fundamentals of Orofacial Myology with Marvin L. Hanson in Ottawa. Contact: Barbara Okun, Dept of Speech and Language Disorders, Ottawa Civic Hospital, 1053 Carling Ave, Ottawa, Ont K1Y 4E9. Tel: (613) 761-4722.

June 19-22: 96th Annual Meeting of the American Dental Society of Europe in St. Andrews, Scotland. Contact: Dr. Clive Debenham, American Dental Society of Europe, 1 Harley St, London W1N 1DA, England.

June 25-29: 81st Annual Conference of the Canadian Public Health Association in Toronto. Contact: CPHA, 1565 Carling Ave, Suite 400, Ottawa, Ont K1Z 8R1. Tel: (613) 725-3769.

June 28-30: Florida National Dental Congress. For more information, contact: Betty Waggener, Director, Florida National Dental Congress, 3021 Swann Ave, Tampa, FL 33609. Tel: (813) 877-7597.

June 28-30: Sri Lanka Dental Association International Congress at the Hotel Hilton in Colombo, Sri Lanka. For information, contact: Secretary, Organizing Committee, Sri Lanka Dental Association, Professional Centre, 275/75 Baudhaloka Mawatha, Colombo 07, Sri Lanka.

July/Juillet 1990

July 2-5: 5th Biennial Congress of the International Association of Oral Pathologists in Tokyo, Japan. Contact: Dr. Tetsuo Ishiki, Niigata University, 2 Gakko-cho, Niigata #951, Japan.

July 6-7: International College of Dentists, European Section in London. Contact: Dr. B.D. Glynn, 35 Devonshire Pl, London, W1N 1PE, England.

July 11-14: 37th Annual Congress of the European Organization for Caries Research in Ljubljana, Yugoslavia. For details, contact: Dr. V. Vrbic, University Clinic Ctr. Ljubljana, Mrvatski TRG 6, Y-61000, Ljubljana, Yugoslavia.

August/Août 1990

August: Annual Congress of International Association of Dental Students in Puerto Rico. Contact: The Secretary, International Association of Dental Students, c/o Fédération dentaire internationale, 64 Wimpole St, London, W1M 8AL, England.

August 24-28: 15th Biennial Conference of the New Zealand Dental Association in Dunedin, New Zealand. For information, contact: Conference Secretary, PO Box 647, Dunedin, New Zealand.

August 25-28: Congress of the Association of Dental Education in Europe in Budapest, Hungary. For details, contact: Prof. Jolan Banoczy, Mikszath K ter 5, H-1088 Budapest, Hungary.

September/Septembre 1990

September: Annual Conference of the European Prosthodontic Association/Dutch Society of Prosthetic Dentistry in the Netherlands. Contact: Prof H. de Koomen, ACTA, Postbus 7161, 1007 MC Amsterdam, The Netherlands.

September 2-6: 10th Congress of the International Association of Dentistry for the Handicapped in Nice. Contact: Prof J.R. Jasmin, Université de Nice, UFR Odontologie, Faculté de Chirurgie dentaire, av Joseph Vallot, Parc Valrose, 06034 Nice, France.

September 5-7: 7th Biennial Congress of the International Academy of Gnathology (Asian Section) in Singapore. Contact: The Secretariat, IAG-7th Annual Congress, Communication International Assoc Pte Ltd, 450 Alexandra Rd, #10-00 Incha House, Singapore 0511

September 8-14: 78th Annual World Dental Congress in Singapore. Contact: Fédération dentaire internationale, 64 Wimpole St, London W1M 8AL, England.

September 10-14: 10th Congress of the European Association for Cranio-Maxillo-facial Surgery in Brussels. Contact: Mrs. H. van Leemputten, rue Joseph Stallaert 28, B-1180 Brussels, Belgium.

September 12-15: dentchnica 90 and the 10th International Congress of Dental Technicians in Cologne, Germany. For information, write: Verband Deutscher Zahntechniker-Innugen, Ilkenhansstraße 6, D-6000 Frankfurt 50, West Germany.

September 17-20: 4th Meeting of International Academy of Periodontology in Istanbul. Contact: Mr. M. Midda, University of Bristol, Dental School and Hospital, Lower Maudlin St, Bristol BS1 2LY, England.

September 27-30: 108th Annual Session of the American Dental Trade Association in Hilton Head, South Carolina. Contact: Mr. Nikolaj Petrovic, American Dental Trade Association, 4222 King St, Alexandria, VA 22302, USA.

October/Octobre 1990

October 1-5: Annual Conference of the Canadian Society of Forensic Science in Ottawa. Deadline for scientific papers is June 1/90. For further information, please contact: Canadian Society of Forensic Science, Suite 215, 2660 Southvale Cres, Ottawa, Ont K1B 4W5. Tel: (613) 731-2096.

October 7-8: American Board of Oral & Maxillofacial Radiology 1990 Certifying Examination in Boston, MA. Applications must be submitted by March 1, 1990. For further information or application forms, please contact: Dr. Axel Ruprecht, University of Iowa, College of Dentistry, DSB S-356, Iowa City, IA 52242-0101.

October 10-13: 53rd Annual Session of the American Association of Public Health Dentistry Deadline for abstracts April 1/90. Send abstracts to: Alice M. Horowitz, 6307 Herkos Crt, Bethesda, MD 20817 USA.

October 13-16: 131st Annual Session of the American Dental Association in Boston. Contact: Office of International Affairs, American Dental Association, 211 E. Chicago Ave, Chicago, IL 60611, USA.



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BRITISH COLUMBIA—Central Interior: 10-year-old general practice for sale. Office is 5 years old. 1500 sq ft, 4 operatories, room for 5th. Full-time hygienist. High gross on 35 hr work week. Suitable for experienced dentist or two new graduates. Please reply to CDA Box 2472.

BRITISH COLUMBIA—Fraser Canyon: Unopposed practice and satellite office for sale. Same owner for 25 years. Presently operated half time but could become full time. High gross, very low overhead, owner retiring. For full details, phone (604) 669-4648 (home) or write: Box 717, 1755 Robson St, Vancouver, BC V6G 3B7.

BRITISH COLUMBIA—Pender Harbour: FOR SALE. Busy part-time general practice for sale on beautiful Sunshine Coast. Two hours travel time from Vancouver. Strong recall/maintenance program and good new patient growth. Ideal for new grad or for a working retirement. Call after 7 pm. Dr. Dan Kingsbury at (604) 886-4535.

BRITISH COLUMBIA—Surrey: Well-established practice for sale. Newly renovated and re-equipped to modern standards. Well-suited to new grads or experienced practitioner. Owner will stay on for negotiable period. Available imme-

diately. Priced for quick sale. Telephone: (O) (604) 590-2522 (H) 594-9630.

BRITISH COLUMBIA—Vancouver: For Sale. One-third interest in established quality practice. West Broadway location. Please reply to CDA Box 2473.

BRITISH COLUMBIA—Vancouver: Enjoy the great West Coast lifestyle! Very busy, growing family practice for sale. High gross, 28 hour work week, shared office for great net. 3 modern, equipped operatories, with ceiling tv's, Exan computer system for 5 years. Not inexpensive, but worth it! Serious calls only please. (604) 494-4303.

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ALBERTA—Edmonton: Established, busy, general practice for sale. Owner returning to school. Modern, organized, spacious and esthetic office located in downtown professional building with low rent and good access. Full-time hygienist, receptionist and two assistants. Excellent cash flow. Phone (403) 426-6047 evenings.

ALBERTA—Edmonton: Practice for Sale. Excellent opportunity for established dentists or new graduates. Modern, 5-operator general practice located in downtown professional building. Owner returning to school. Phone (403) 465-5035 or 467-6887 after 6 pm.

ALBERTA—Fairview: Dentists urgently required to take over well-established 2-man practice in Med/Dent bldg in progressive community. 900 sq ft, newly renovated, 3 operatories, patient records, leasehold improvements and considerable equipment included at no additional cost. Other equipment available from recent estate. Experienced staff, heavy patient load with corresponding income. Dr. M. Woronuk, 14328 — 63 Ave, Edmonton T6H 1S4. Ph (403) 435-0048 or 835-2455.

ALBERTA—Medicine Hat: Share in extremely busy 2-man family practice. High profile, state-of-the-art equipment, unique features. High annual billings. 8000 plus patient charts. 6 operatories. 2000 sq ft. Reply in confidence to CDA Box 2476.

SASKATCHEWAN: Very busy, family-oriented practice for sale or associateship leading to purchase in small Saskatchewan city. Four fully-equipped operatories, including panelipse. Large patient base makes it suitable for 2 new graduates or 1 experienced dentist. Very reasonable selling price. Reply to CDA Box 2420.

MANITOBA—Winnipeg: Family-oriented practice for sale. Three fully-equipped operatories in a modern 1000 sq ft facility. Good gross and excellent net. Apply in confidence to CDA Box 2470.

ONTARIO: Busy, established, family practice for sale in small town near Lake Huron. Modern 30' x 50' building, air conditioned, two well-equipped operatories. Reception and business areas, lab, kitchen, bathroom, private office and staff room (or third operator). Very competent, well-trained staff available with practice. Excellent income, low overhead. Please call (519) 482-5864.

ONTARIO—Hamilton: New, modern office in rapidly growing area. Presently used as office for MD. Lots of free parking. Excellent lease terms. Spacious 1200 sq ft with 4 available rooms all plumbed. Available after January 1990. Phone (416) 574-1212.

ONTARIO—Newmarket: North of Toronto. Family practice in a new, modern office — storefront with good growth potential — 2 ops, 1 equipped, plumbed for nitrous, 1 hygienist. Priced to sell. Call (416) 841-2101.

ONTARIO—Ottawa Valley: Family practice for sale. Established 22 years. Owner plans retirement and is willing to associate for a specified period. Low overhead, — combined residence available too. Hospital privileges. Excellent recreation area. Present staff willing to continue. Two operatories, 900 sq ft, air conditioning. Reply to CDA Box 2438.

ONTARIO—Suburban Toronto: Periodontal practice for sale. Excellent oppor-

tunity for growth. Reply in confidence to CDA Box 2475.

ONTARIO—Thunder Bay: Dentist joining staff of college. Long-established, busy, solo practice. Two-year old building, 4 operatories, outstanding recreational opportunities. Practice for sale and building for sale or lease. Call (807) 768-0586 evenings.

NORTHWESTERN ONTARIO: Tired of the city life? Here is your chance! Modern dental practice for sale or lease in beautiful Dryden, Ontario. Bookings of two months. High gross. Owner returning to grad school. The price is more than right! Call collect: (807) 223-6101 or (807) 223-6262 after 5 pm.

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QUÉBEC—Montréal West Island: Two fully-equipped operatories, dental office for sale. Very good flow of patients; office situated at Pierrefonds Medical Centre. Seven years practice in same location. Available immediately. Please call (514) 455-8545.

NEW BRUNSWICK: Busy, growing family practice for sale. Newly renovated office, two operatories, plumbed for third. Planmeca pan with capability for ceph, electrosurg, new Dent-X processor, N₂O. Hospital privileges available nearby for restorative dentistry or surgery under general anesthetic. Super opportunity to practice all aspects of modern dentistry a thriving smaller city — perfect area for a sports-minded individual or family. Reply to CDA Box 2469.

SOUTH CENTRAL NEW BRUNSWICK: New clinic available. 4 ops. Expanded hours in fast growing, very central retail area of strip malls. 6 day facility, 3-4 day week rotating partners. NO₂ desirable. Excellent recreational area. Please reply to CDA Box 2474.

NOVA SCOTIA: Well-established family practice, modern 5 chairs, all fully-equipped, x-ray units and fibre optics, panellips, ceph, NO₂, large lab, private office and efficient booking and recall system. Will assist in orderly transition and maintaining of patient loyalty. Don Stephenson (902) 422-2214 (home) (902) 429-1888 (office).

NOVA SCOTIA—Sackville: Situated 20 minutes from Halifax in enclosed mall in developing suburban area. 3-year-old practice with excellent rent and lease arrangements. 15 new patients per week, plus 1500 recall patients. Dentist wishing to consolidate effort in other existing practice. Priced for immediate sale. (902) 466-5484.

NOVA SCOTIA—South Shore: Established practice (17 years) for sale in modern facility. For further details, phone (902) 634-8880 or write Dr. Robert Murray, Lunenburg Medical/Dental Centre, PO Box 370, Lunenburg, NS B0J 2C0.

Associateships Available

NORTHWEST TERRITORIES: Well-established family practice requires a capable, conscientious associate. Modern facilities with excellent support staff. Contact: Patricia Bell, Box 1570, Hay River, NWT X0E 0R0.

NORTHWEST TERRITORIES: Position as associate in modern practice in Iqaluit. Because this involves travel to communities, post-graduate experience preferable. Only enthusiastic, adventurous applicants willing to stay at least two years need apply. Reply to Dr. Hassan Adam, Adam Dental Clinic, P.O. Box 1118, Yellowknife, NWT X0A 2N8.

BRITISH COLUMBIA—Chilliwack: Associateship with view to partnership available to dentist committed to continuing education and excellence in patient care. Busy practice located one hour east of Vancouver in beautiful Fraser Valley. Area offers skiing, hiking, boating and mild climate. Present associate returning to school after having busy practice for 3½ years. For further information, contact Dr. Michael Thomas, 102-45625 Hodgins Ave, Chilliwack BC V2P 1P2 or call (604) 792-0021 (office) or (604) 795-9818 (residence).

BRITISH COLUMBIA—Nanaimo: Associate required. Excellent opportunity in busy and growing practice in mall setting. Wonderful climate and recreational facilities. Close to Vancouver and Victoria. Reply: Dr. Patricia Crosson — days (604) 754-1949, evenings (604) 468-9892.

BRITISH COLUMBIA—Williams Lake: Full-time Associate Wanted. Busy, well-equipped family practice with good support staff including hygienists. Phone — Alistair Menzies (O) (604) 398-7161 or (H) 392-2615 collect.

ALBERTA: ASSOCIATESHIP/PARTNERSHIP Exceptional opportunity available for an associate in a busy general practice. To assume full patient load. One hour from Edmonton. Partnership opportunity available. Excellent support staff and great up-to-date facility. Call Dr. Darryl Schultz at (403) 672-9118.

ALBERTA—Beaumont: 15 minutes south of Edmonton. Associate required for new satellite dental office. Initial part-time increasing to full-time would be considered. Opportunity for partnership and ownership. Excellent opportunity to supplement your income. Phone (403) 424-2644 (bus) or (403) 435-0849 (res).

ALBERTA—Edmonton: Full-time associate required for busy mall practice. Well-equipped with 3 full operatories and pan. Excellent opportunity for new graduate or established practitioner. Partnership opportunity. Reply to Dr. Brian Pisesky (403) 487-8793.

ONTARIO: Full-time associate to assume patients of associate dentist who is moving after eight years. Busy, well-established, modern, progressive office. Congenial, long-term, capable staff. No evenings or weekends. Excellent net income. Equity position available. Dr. Alan Clifford (519) 351-0727.

ONTARIO—St. Catharines: Associate wanted for modern, store-front location. Seeking dynamic, team-oriented individual to join established, highly preventative, general practice with motivated, congenial staff and buy-in potential. In scenic Niagara, minutes from excellent golf and sailing, 20 minutes to US border and 1½ hours from excellent skiing. Call Vanda at (416) 688-1661 collect.

ONTARIO—Sudbury: Full-time associate required to practice between 2 offices. One storefront with 2 optometrists and 2 veterinarians, the other in a medical/dental building with a library, pharmacy and medical doctor. Am the only dentist servicing about 5000 people. 40-60 per cent associate percentage offered. Call (705) 522-4252.

Auxiliaries

ONTARIO—Waterford: Hygienist required immediately for general practice. Remuneration excellent based on experience. Within 30 minutes of the city of Brantford. Please call or write to the following: Box 850, Waterford, Ont NOE 1Y0. Tel: (519) 443-8648.

Opportunities Available

BRITISH COLUMBIA—Victoria: ORAL AND MAXILLOFACIAL SURGEON — I am approaching retirement and would like to ease out of an established, major oral surgical practice which is hospital-based. There is a foundation of orthognathic and temporo-mandibular joint surgery and as much dento-alveolar surgery as one would wish to encourage. This is an exceptional practice and requires a well-trained, competent, confident surgeon. Replies to CDA Box 2477.

ALBERTA—Calgary: Full-time and part-time associates required immediately for various locations. Please call Dr. Lim (403) 288-4466 or evenings (403) 239-6602.

ONTARIO: LOCUM/ASSOCIATE REQUIRED Busy family practice centred in the scenic Ottawa Valley, requires locum/associate to work in modern computerized office with pleasant staff. Have the luxury of both country and city living just one hour from Ottawa. Fishing, hiking, skiing and watersports are within 15 minute drive. For more information, contact (613) 432-4864 after 6 pm or 432-6916.

ONTARIO—Ottawa: Locum required for maternity leave March 1 – July 1, 1990. Please contact Dr. J. Alan Bridges at (613) 225-4208.

ONTARIO—North Toronto: Position available immediately for a paediatric dentist with Ontario certification in a modern, well-established private practice. Full range of dental care provided from preventive to orthodontic services; well care and special needs (mentally and physically compromised) children and adolescents. Associateship with future prospects for partnership or cost-sharing arrangement. Please reply to CDA Box 2426.

ONTARIO—Toronto: ORAL & MAXILLOFACIAL SURGERY. Quality practice in professional building. Current OSOMS fees, Branemark implants, orthognathic, etc. Modern facilities and equipment. Would consider an associate. Owner wishes to concentrate on suburban location. Reply to CDA Box 2439.

Opportunities Wanted

BRITISH COLUMBIA: Experienced, mature dentist seeks associateship with view to partnership in a group setting. Area preferred is Surrey to Abbotsford, other locations will be considered. Please call (604) 534-6220.

BRITISH COLUMBIA—Lower Mainland: Dentist requires associateship or partnership in modern, progressive general practice. Group practice preferred. Will consider purchase if vendor remains during transition period. Reply in confidence to CDA Box 2456.

ALBERTA—Edmonton: Experienced, multidisciplinary dentist wishes cost-sharing associateship position. Have own established large patient base. Can provide new equipment if necessary. Easy-going, friendly individuals please phone (403) 473-1248.

ONTARIO: BILINGUAL DENTIST SEEKS part-time position (2 days per week) in Gatineau-Hull. Telephone (819) 561-1662 (office) (613) 728-8449 (residence).

Equipment

ONTARIO: 1 Cox chairside lab, 1 Cox storage lab, 1 Cox assistant unit 2. Floor display models. Never used. Colour Acorn. Contact: Dr. T. Cox, Guelph Bus (519) 824-4970 or Home (519) 763-0626.

QUÉBEC: CEPHALOMETRIC X-RAY unit, used 4 years. Produces high-quality cephalometric radiographs, has 110 mA, 110 kvp, full-wave timer, head positioner, collimating cone and accessory cone for intra-oral radiographs. Price: \$9800 (paid over \$20,000). For information: Dr. J. Lemay (819) 563-7770.

Vacation Rentals

BRITISH COLUMBIA—Whistler: Ski Chalet. Brand new condo available for this season. Steps from Whistler Village and lift on edge of golf course. Great view! Jacuzzi and steam. For details, call (416) 239-4393 — Dr. John.

BRITISH COLUMBIA: SKI Blackcomb/Whistler. Luxury three bedroom condo sleeps up to 8. Walk to lifts. Dr. B. Clarke (519) 886-8980.

BRITISH COLUMBIA: Whistler chalet. Planning a ski holiday? Beautiful, modern, 2-bedroom plus loft townhome available weekly or monthly. Walking distance to lifts and Whistler Village. (416) 391-4358.

BRITISH COLUMBIA—Whistler/Blackcomb: Walk to village and lift from my super 3 bedroom + loft chalet! Stunning view, fully-equipped. Sleeps eight comfortably. \$2000 per week. Call Dr. David Speirs (604) 874-3404.

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Continuing Education – A Legal Requirement?

In an earlier incarnation, I was given the very great privilege of playing a small role in the founding of Canada's eighth dental school.¹ During the months of its planning and construction, I searched for a credo which could permanently be installed in a prominent location to be seen and read by all who walked by. Many were considered. But the one selected, in my view, was so superiorly-enduring that its pertinence and applicability remain undiluted with the passage of the more than two decades it has graced the building's lobby.

The quotation is from Moses Maimonides, a Spanish rabbi who lived over 800 years ago. He could not have known that with the exponential explosion in knowledge, which has been so characteristic of the latter half of the twentieth century, his words would have even greater significance ages after his death:

May there never develop in me the notion that my education is complete; but give me the strength, leisure, and zeal continually to enlarge my knowledge.

Let there be no doubt that health care professionals must, as a matter of ethics and, indeed under certain circumstances, law, maintain the integrity of their academic and clinical currency. With G.V. Black, I hold strongly to the view that dentists are obligated, throughout their active professional lives, to be continuing students always seeking to enlarge their capacities for providing competently-effective services to all who seek their care. This is an inescapable obligation which one willingly assumes when one accepts the privileges of membership in the profession. I hold, then, that this requirement for continuing competence is axiomatic; it is a self-evident obligation inextricably entwined with the professional privileges which attend the practice of our profession. ***What I do not believe, however, is that this professional duty should be required by law.***

That the view just expressed will exercise many colleagues and some licensing authorities is acknowledged and sympathetically understood. Well-meaning and highly-motivated people, interested only in the profession being able always to render its services to an admirably high level of competence, take the view that, because there will always be some practitioners who live professionally in the twilight zone, whose judgements are something less than credible, and who perform clinically below a standard which a reasonable and prudent dentist would find acceptable, all, **by law**, must give evidence of continuing education – not necessarily continuing competence or the assuring of the delivery of quality services.

The enforcement of mandated continuing education begins, generally speaking, by a book-keeping requirement placed on the registrar of a provincial dental governing body who records authenticated attendances at approved conventions, local society meetings, study clubs and continuing education programs. A pre-determined number of points is earned for each attendance and a minimum total must be acquired within a stipulated period of time as a condition precedent to licence renewal. To date, no evaluative determinations have been made concerning whether or not the attendees derived benefit or value from their involvement and, as a hoped-for consequence, the patients who receive their services. Nor has anyone yet devised a plan accurately to assess and quantitate desirable self-initiated, self-improvement programs based on independent reading or the viewing of video tapes or the listening to recordings, activities in which a very substantial number of dentists engage.

The theory, of course, is that if dentists are required to attend approved programs they are bound to learn something. And that's all to the good. But is that sufficient justification for the exercise? Surely the purpose of a **legally-required** continuing education program is to maintain and possibly enhance a high standard of care to which the public has the right to expect from members of the profession. If that view is valid then – or so it seems to me – there should be within jurisdictions, in which licence renewal is contingent upon the acquisition of authenticated continuing education attendances, evidence of an enhancement of the quality of care. Perhaps I have missed it. But, to date, I have seen no evidence, whatsoever, to support that admittedly laudatory purpose.

Continuing education cannot necessarily be equated with continuing competence. Continuing competence, in its turn, cannot necessarily be equated with quality assurance. There is not a dentist in Canada unfamiliar with the principles of cavity preparation. That complaints and discipline committees, from time to time, must deal with grossly sub-standard operative dentistry has little to do with the fact that the inculcated dentists were not knowledgeable of the principles. They simply didn't care.

Continuing competence, too, may have precious little to do with over-servicing or under-servicing. Dentists who see the need for beautifully-crafted silver amalgam restorations where none is required or practitioners, contrary to their own knowledge and understanding, who recommend the retention of infected primary molars to serve as space maintainers for the subsequent replacements may otherwise be clinically competent but are totally abrogating any pretensions to quality assurance and all that that connotes. And none of this is captured by legally-mandated continuing education requirements. What we are dealing with here is not lack of knowledge but rather unadorned acquisitiveness or professional disinterest.

I well know the problem created by dependence upon the personal responsibility of the individual dentist to maintain and enhance his or her knowledge base. Licensing authorities must invariably await reasonable grounds to believe that particular members are not functioning in accord with the standards of practice before they can intercede. Critics would refer to this as the "locking of the barn door after the horse has gone" syndrome. And, believe, me, if I thought for a moment that **legally-required** continuing education would prevent the animal from escaping in the first place, I would be at the head of the line with the padlock.

If there are reasonable grounds to believe that particular dentists are not maintaining acceptable standards of practice then the authority of the delegated legislation which enables the governing or licensing authorities to take effective action should be clear and unequivocal. There should be the right, pursuant to legally-recognized principles, to investigate practitioners when, to responsible professional authorities, there is a clear need to do so. If, in the fullness of time, it is ascertained that a practitioner is, indeed, knowledgeably or clinically deficient then before practice can be resumed, required remediation programs, followed by evaluation, should be instituted. Subsequent practice monitorings should later be pursued.

Will any of the above expression of views change anything? Of course not. There is a pervasive opinion held by a very significant number of authorities that when continuing education is mandated some wonderful alchemy ensues. And even if it doesn't, it shows that something is being done notwithstanding the purpose of the time-consuming and expensive (to the profession) undertaking is unverifiable in its results. But as someone remarked to me in another context, recently, "Don't try to persuade me with logic. It's a political decision."

¹ Dunn, W.J., "Canada's Eighth Dental School is Born", *Journal of the Canadian Dental Association*, Vol. 31, No. 11 (November 1965) pp. 693-699.

Wesley J. Dunn
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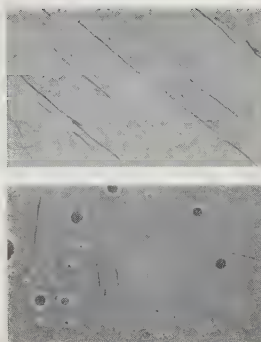


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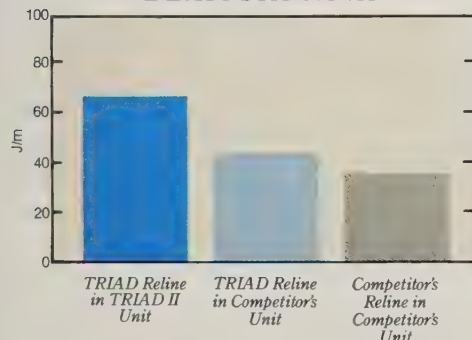


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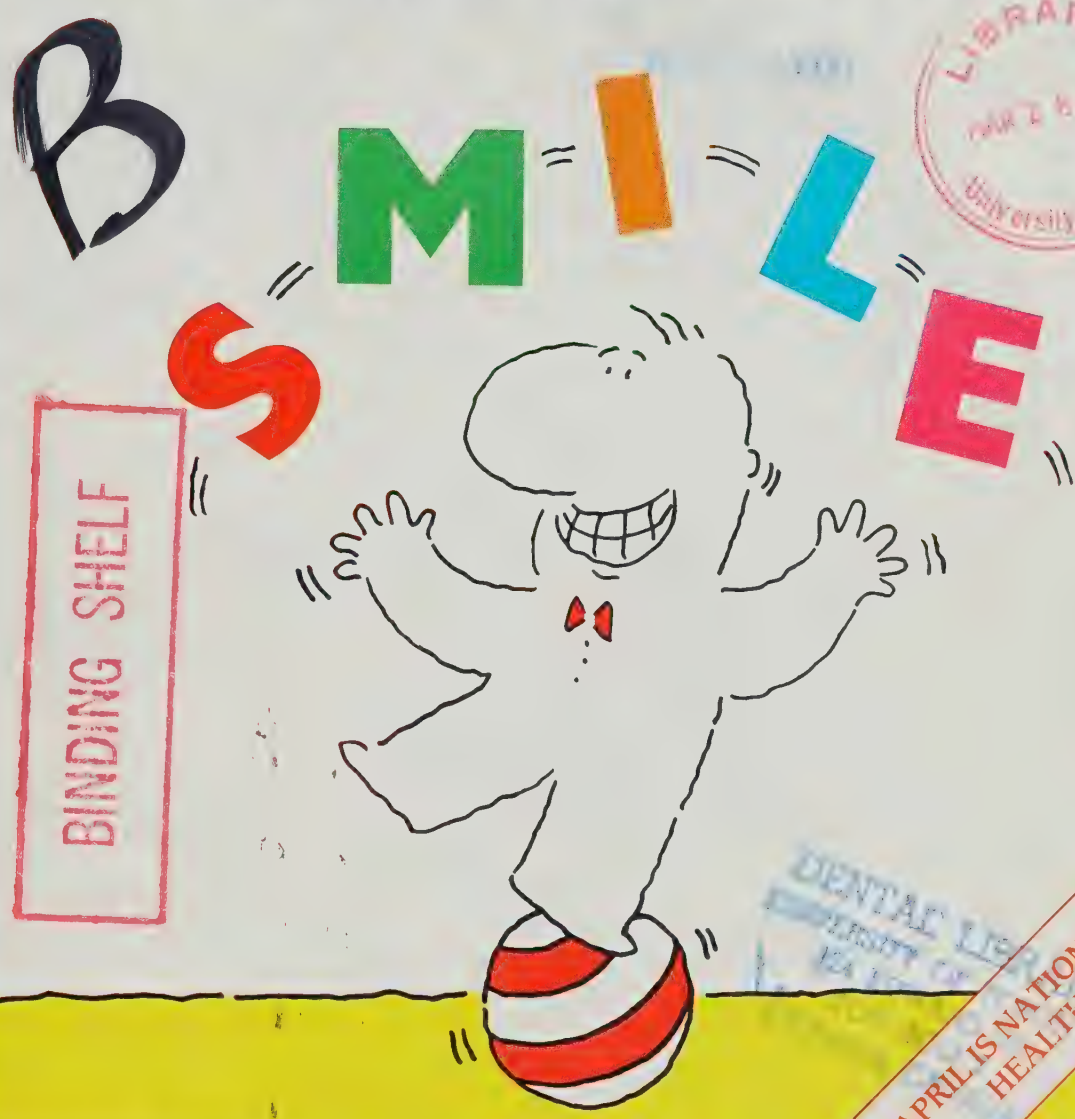
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The Canadian Dental Association serves the dental profession — and through the profession the Canadian public — as the authoritative national voice and resource for dentists.

In cooperation with the provincial dental associations and affiliated organizations, CDA offers services, in both official languages, intended to support and advise all areas of dentistry and to represent, protect, promote and develop the interests of the dentist as ethical practitioner, professional, educator, student, researcher, business person, citizen and individual.

CDA recognizes a particular responsibility to contribute to the development of national positions and standards related to dentistry, dental education, dental research, dental equipment, dental materials and dental personnel.

CDA is dedicated to the principle that all Canadians should have the best oral health care it is possible to provide; it actively seeks input from and dialogue with governments, consumers and all those interested in dentistry to enable it to serve more effectively both its members and the Canadian public.

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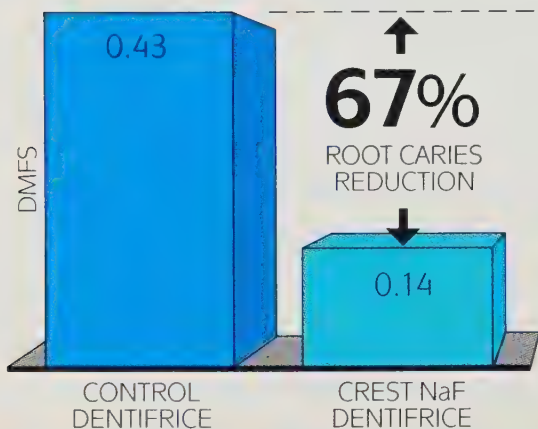
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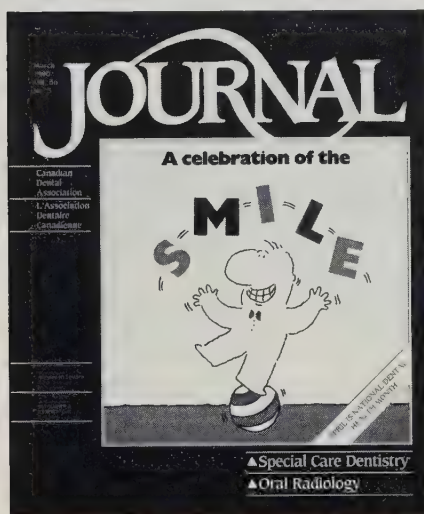
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April is Dental Health Month.

The Journal's cover illustration is the cover of the Dental Health Month Planning Kit featuring "A Celebration of the Smile".

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Well, Why Don't You?

Not long ago a group of dentists, hygienists, assistants and Canadian Dental Association people were sitting around discussing April's Dental Health Month. The conversation ranged through a variety of topics: CDA's sponsorship of Dental Health Month for almost 40 years, the success of the Dental Awareness Program since inauguration in 1985, and the involvement of dental health workers in the activities.

One dentist rather innocently made the remark, "You know, this year I think I will **really** do something **myself** for Dental Health Month." The words were scarcely out his mouth when several people (both auxiliaries by the way) spoke up, "Well, why don't you?" This led the conversation down an entirely new path.

It was soon reiterated and emphasized that **dentists themselves** really do not actively participate in Dental Health Month. All too frequently it is the office staff; hygienists, assistants and receptionists, who are seen in shopping malls and community locations proclaiming the achievements of the profession.

Polls time and again have indicated the high status of dentistry. Despite the cartoons, lampoons and late night comedians, the public likes us. They trust and respect us. We head the list of all occupations in the public's confidence.

Recent Gallup statistics tell us the public wants **dentists** to tell them about oral health. Certainly they will be influenced by commercial pitches, media advertising and prevention by auxiliaries but the public expects **dentists** to be their main source of dental health information.

Going to the dentist is not the most joyful experience in anyone's life but every statistic informs us people are coming to our offices in increasing numbers. Today, dentistry is more a matter of quality of life than ever before. Now, and particularly during Dental Health Month, is the time to really get out into the community and tell the public about our achievements and accomplishments. Another recent poll suggests the most successful organizations in the country are those which do just that – continually remind constituents and members how "great we are!"

Surely **dentists** have plenty to proudly tell the world. We **are** great! In one generation **dentists** have preached fluoridation in every corner of the country and literally wiped out about 60 per cent of all dental caries. **Dentists**, not politicians, not unions, not medicine, but **dentists**, have decreased the edentulous rate for people over the age of 50 from 72 per cent to almost 40 per cent. **Dentists** have been at the forefront of making dentistry more affordable. Without **dentists'** advocacy and cooperation there wouldn't be a single dental insurance plan in all Canada.

Today, to a degree unknown in dental history, the skill and armamentarium exists within every operatory to bring a beautiful smile to anyone with the desire. Composites, bonding and veneering – cosmetic dentistry – virtually unknown a few years ago, are commonplace and accessible. **Dentists**, teachers, researchers and clinicians, have made all this possible!

If the possessors of all these achievements had been anyone except dentists the good news would have been hailed and hollered from every rooftop and TV tube. But we don't act in this manner. We are reluctant and reticent. We are professionals and don't really want to get into the "hype of selling" dentistry. It isn't our way.

During April's Dental Health Month the **dentists themselves** have an ideal opportunity to move out of the office and into the community. The shopping mall display, the service club podium, the seniors' residence presentation, the local newspaper interview, the home and school meeting, and numerous other venues, are all excellent methods to tell everyone "how great we are".

During this year's Dental Health Month don't just give luke-warm support. Adopting the attitude, "It's up to my association", won't generate any lasting effect. Don't think you are doing yourself a favour by sending your office staff. After all, it's your future.

"Well, why don't you?"

P. Ralph Crawford, BA, DMD

Editor: Journal of the Canadian Dental Association

President's Column



National Dental Health Month/ Dental Team

Another winter is history. The bright sunshine and longer days of March signal the approach of Spring once again, and along with Spring comes Dental Health Month in April.

From St. John's to Victoria, dental teams of dentists, hygienists and assistants are preparing to spread CDA's gospel of oral health — "Good for Life". Dental Health Month and activities under the CDA Dental Awareness Program are CDA's major thrusts in this regard.

At their annual meeting in Honolulu our American confrères introduced their "Smile America" campaign — some five years after CDA's "Good for Life" dental awareness promotion was initiated. Another Canadian export under free trade? You can be justifiably proud of CDA's efforts in this arena on your behalf. And let me also salute our provincial Associations, particularly Saskatchewan, the College of Dental Surgeons of B.C., as well as the Order of Dentists of Quebec, perhaps the most senior player in the field — for their high-quality provincial dental awareness campaigns. Another article in this issue of the Journal outlines provincial initiatives in more detail. A laudatory word is also long overdue to my friend Dr. Bill Hettenhausen of "Your Teeth for a Lifetime" fame, for his lifetime commitment to oral health.

What does Dental Health Month accomplish for you and your practice? It provides you with the opportunity to promote the team concept in your practice as well as to promote your own practice in your community, by your volunteer efforts such as participating in a toothbrush swap, addressing parent and school groups, judging a smile contest or providing a complimentary day of dentistry for the needy. You also gain something even more worthwhile — the satisfaction of serving your fellow-man.

CDA, on your behalf, is like the floss removing the layers of misconceptions about dentistry. Dental awareness programs promote access to oral health care and help alleviate patient fears about pain, cost or inevitable tooth loss. Like the toothbrush, dental awareness projects, regularly applied, help this generation of Canadians to include oral health in the "quality lifestyle" they seek to achieve.

Yes, Dental Health Month and dental awareness projects make a difference. B.C. enjoys the highest utilization of dental services in Canada and attributes much of this to their marketing campaign. In Quebec last year, ten percent of the dental patients indicated they would not have made their first appointment if they hadn't initially seen the ODQ's dental awareness advertisements on television.

The electronic and print media communications help provide these results. But please don't forget the most effective method of all — the individual dentist taking time to listen to and communicate with that warm body sitting in the operatory chair. The individual dentist, working harmoniously with his or her own committed oral health care team, both in every day practice and on dental awareness projects, is still the best means there is of reaching the public and helping all of our fellow citizens to achieve optimal oral health.

Help your profession and your practice by helping your fellow man. Join the dental awareness team today.

*Kevin L. Roach, BSc, DDS,
President of the Canadian Dental Association*

A Report

Prosthodontic Conference held at University of British Columbia

A conference of representatives from the major organizations in Canada with an interest in prosthodontics was held at the University of British Columbia in August of 1989, at the request of the Association of Prosthodontists of Canada. The conference was chaired by Dr Michael MacEntee, Chairman, Division of Prosthodontics, Faculty of Dentistry, University of British Columbia. The representatives participated in formal and informal discussions over two days, and addressed the current issues facing this segment of dentistry in Canada. Four workshops were conducted to discuss and clarify the issues of concern to those present, and recommendations for action were compiled at a general meeting of all the participants.

Sensitive to the established and central role of prosthodontics within the dental profession in Canada, the organization committee with the approval of the Association of Prosthodontists of Canada and the British Columbia Society of Prosthodontists, proposed that the conference should assess the current status of prosthodontics in the country. The specific objectives of the conference were to:

1. identify issues of concern to prosthodontics in dental practice.
2. consider the role of prosthodontics in dental education
3. quantify prosthodontic research in Canada
4. review recent experiences in the USA relevant to prosthodontics in Canada
5. offer recommendations for action by the Association of Prosthodontists of Canada, the Canadian Dental Association and other influential bodies.

Eight speakers presented summaries pertaining to their particular prosthodontic interests.

Dr. William Laney: "Experiences in the USA"

Representing the Federation of Prosthodontic Organizations, Dr. Laney spoke on the experiences in the United States. He outlined how prosthodontics was among the first of five disciplines recognized as a specialty of dentistry in

1947 by the American Dental Association. In 1983 the role of the dental specialist was reviewed again by the ADA. Criteria for specialty recognition were clarified to identify disciplines that respond to a substantial need and demand for clinical service, and offer formal advanced education of at least two years duration to graduate dentists.



Dr. William Laney

By a random draw in the ADA process, prosthodontics was the first specialty chosen for a complete review. The Federation of Prosthodontics Organizations, the body in the USA entrusted with certification of prosthodontists, had to provide justification for the specialty. Two areas of concern were raised during the process; one relates to the erosion of time in the undergraduate prosthodontic curriculum, the other considers the difficulty of candidates proceeding to examination after their postgraduate prosthodontic education.

Dr. W.R. Bedford: "The Role of Prosthodontists in the Oral Health of Canadians"



Dr. W.R. Bedford

Dr. Bedford, Senior consultant, dentistry, Health and Welfare Canada, offered the Conference the perspective of a public health dentist. He said one of the greatest impediments to an effective plan for oral health in Canada stems from the lack of national data on adult oral health. He also emphasized the increasing requirement for dental care among two particular groups, the institutionalized seniors and the native populations of Indian and Inuit.

There is a belief in government circles that organized dentistry has done nothing of substance to alleviate the poor oral conditions found in institutions or to address the fact that about half of the

dentures delivered to native communities in remote areas cannot be worn.

Dr. Bedford suggested it was important for dentists to realize their role in the health care system will be influenced substantially by the information they give the policy makers. The need for prosthodontic treatment in the community may be obvious to those who provide this service, but it is necessary to communicate and demonstrate this need to others if the service is to receive the attention it deserves.

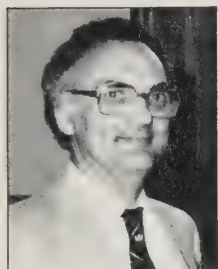
Dr. Michael MacEntee: "Prosthodontic Research in Canada"



Dr. MacEntee, Chairman, Division of Prosthodontics, the University of British Columbia, reported on dental research in Canada. He referred to an article, "Clinical Dental Research in Canada", *Journal of the Canadian Dental Association*, vol. 54, No. 9, 1988. A review of dental research by the Medical Research Council (MRC) demonstrated there was very little clinical research supported by MRC in Canadian faculties of dentistry.

A member of the prosthodontic faculty in each university was contacted, just prior to this conference, in an attempt to obtain current information on the research in progress that might be pertinent to prosthodontics. The response, which came from eight of the ten faculties, identified 50 relevant projects. Most of them were concerned with biomaterials, but more than third had no clinical component. While 41 per cent of this research was supported by MRC, 24 per cent received support from industry, and 29 per cent had no direct financial support. The result of this small survey confirmed the MRC observation that prosthodontists, like other dental clinicians, rarely undertake expensive research endeavors, although that is not to say they are uninvolved in research.

Dr. D.V. Chaytor: "Curricula in Canada: the Influencing Content"



Dr. D.V. Chaytor

Dr. Chaytor, Dalhousie University, posed the question, "Should a professional education, as the consequence of a structured curriculum, prepare the new dentists "definitely and adequately" for

all the demands of dental practice, or should it prepare a dentist for a "life of learning"? In addition, he asked, "Is the dental student receiving a good mix of both science and practice?" Nevertheless, it must be conceded that whatever the question, the individual teacher is the principal influence on curricular content. There are many contributors to the environment in which curriculum evolves. It doesn't appear by mere accident.

Dr. Chaytor pointed out that the curricular time allotted to the discipline of prosthodontics had been reduced substantially over the last two decades while the demand for prosthodontic care in practice has increased. He also raised the question of the relative responsibilities of the general dentist and the specialist. The distinction between the "good" generalist and the prosthodontist is particularly confusing. At present the prosthodontic course objectives in most dental curricula offer little to resolve the issue.

Dr. Dennis Nimchuk: "Interaction of Prosthodontists with Other Health Professionals"



Dr. Dennis Nimchuk

Dr. Nimchuk, a private practitioner in Vancouver, opened his remarks by stating prosthodontists in Canada offer a health service in close relationship with the general dentist, the dental technician, and the denturist. In general these relationships work well if they are based on mutual support. However, discontent between the general dentist and the specialist is not uncommon, and it poses a constant threat to the high level of oral health care available.

He indicated the most hostile anti-specialty feeling among dentists in North America is expressed by the Academy of General Dentistry, which was responsible in large part for the American Dental Association decision in 1987 to review the status of all dental specialties.

Specialty dental practices should operate on the principle that the health service offered by the specialist is beyond the capabilities of a general dentist. This principle dictates that a general dentist has an ethical obligation to recommend the service of a specialist when it will benefit the patient. A specialist, on the other hand, should not solicit work outside the collegial referral system, nor offer treatment that can be performed by the general dentist.

Dr. Nimchuk expressed concern about the trend towards a concentration of economic and political control of the dental laboratory industry in the hands of a few very large commercial enterprises. Undergraduate dental education makes no practical provision for dental students to acquire the technical skills needed to produce a prosthesis efficiently. Therefore it is crucial there be good support from a regulated laboratory industry.

In addressing the topic of denturists, Dr. Nimchuk said they were major suppliers of complete dentures directly to the public across Canada and in five U.S. states. The relationship between the dentist and the denturist remains strained but there is increasing evidence individual dentists and denturists are working together to the benefit of all concerned. The general public seems content with the choice of denture services available and the politicians see no value in mediating to relieve any strain.

Dr. R.K. House: "The Economics of a Prosthodontic Service"



Dr. R.K. House

Dr. House, an economic consultant to a number of dental associations, said there are two major trends threatening the income of dentist; one, more dentists and auxiliaries; and two, less caries.

However, the effects of this combination are as yet not fully evident. Expenses in a general dental practice require about 63 per cent of the gross revenue.

Although revenues from restorative procedures have been increasing in recent years, (while diagnostic and preventive services have been less profitable), it is still not entirely clear why some practices are very successful while others struggle.

Dr. House suggested future economic policy must consider the impact of adjusting the fee for each individual service. Fixed prosthodontics will be one of the prime targets for this consideration. The growth in revenues from fixed prosthodontics increased only three per cent, between 1971 to 1988, and careful adjustment of the fee structure might produce a 25 per cent increase in gross revenues from this service alone.

There is no real need to predict gloom and doom said Dr. House. Gross incomes have more than doubled in the last ten years and net incomes have increased by 82 per cent, while the demand for dental services has increased by 48 per cent within the last year. If the economy runs into trouble it will be difficult to sustain this growth, but the future looks prosperous for the dental profession until at least 1992. After that the questions remain unanswered.

Dr. Arthur Schwartz and Mr. Brian Henderson: "Recognizing Dental Specialists in Canada — a CDA Investigation"



Dr. Arthur Schwartz



Mr. Brian Henderson

Dr. Arthur Schwartz, Chairman of the CDA Council on Accreditation, and Mr. Brian Henderson, Director of Education, Accreditation and Professional Services, reported on the CDA Ad Hoc Committee established in 1988 to review the current arrangements for recognizing dental specialists across Canada.

The Committee has produced *Discussion Paper 1 — A Principles Approach to the Certification of Dental Specialists*. It contains six principles that could serve as the foundation for recommendations. The paper was circulated for reaction and a wide range of comments were received on each of the principles.

The committee has considered the comments and subsequently produced *Discussion Paper 2 – Certification and Licensing of Dental Specialists* in which “the Principles have been clarified and in some cases tentatively modified.” This second paper will be circulated also for a response from all interested parties.

Conference Recommendations: Addressed Seven Main Issues

Following the formal presentations, four separate workshops were conducted to discuss and clarify the issues of concern. Recommendations for action were compiled at a general meeting of all participants:

- lack of information on the current oral health status of adults
- inadequacy of prosthodontic services to remote areas
- role of auxiliary personnel in a prosthodontic service
- difficulties of clinical research and teaching
- need to improve the dental education of physicians and others working in the health services
- practice of prosthodontics, from fee guides to patient records
- national certification of prosthodontists. Δ

Further information on the Conference and a complete outline of the Recommendations may be obtained from Dr. Michael MacEntee, Faculty of Dentistry, The University of British Columbia, 2199 Wesbrook Mall, Vancouver, B.C., V6T 1Z7: Telephone 604 228-3564

Meet the CDA Headquarters Staff EXECUTIVE DEPARTMENT



Mr. Jardine Neilson, Executive Director of the Canadian Dental Association, foreground, whose mandate is the overall accountability for the management of the CDA, poses with the executive office staff members. They are, from the left:

Mrs. Suzanne Burton, who provides secretarial and administrative support to the Manager, Executive Services, handles matters pertaining to the Board of Governors, Executive Council, Management Committee and other CDA Councils and Committees, including minutes of meetings.

Mrs. Sandra Deziel, who is charged with management and coordination of Board of Governors, Executive Council and Management Committee affairs and provides senior staff support to other CDA councils and committees.

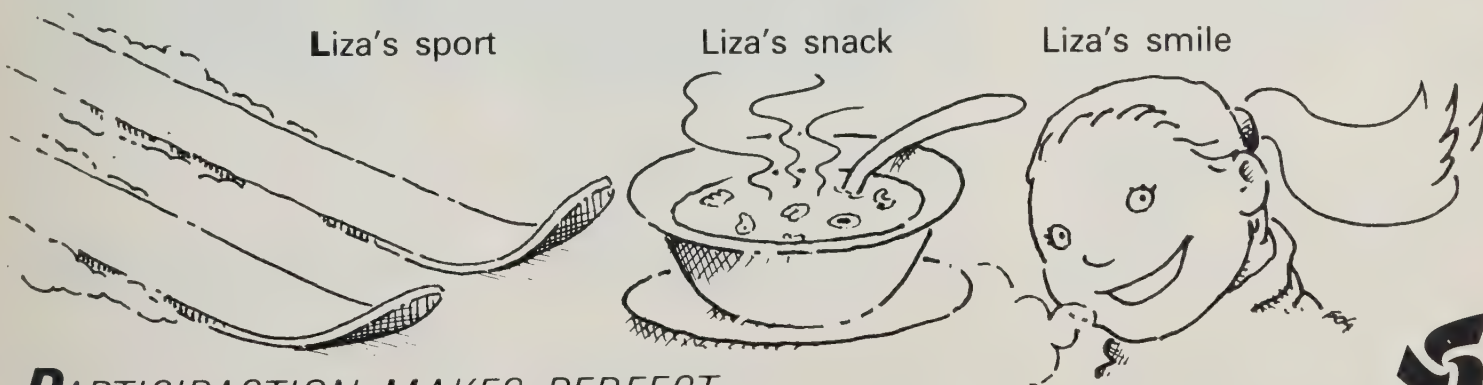
Mrs. Ruth Beaulieu, provides secretarial and administrative support for the Executive Director and the President. She also coordinates meeting schedules, travel and accommodation arrangements for the President and Executive Director.

Miss Martyne Giroux provides secretarial support for the Executive Department and assists the Council Secretary in the preparation of reports and correspondence. Δ

Liza's sport

Liza's snack

Liza's smile



PARTICIPATION MAKES PERFECT



Management of the Medically Compromised and Handicapped Patient in Dental Practice

A two-day meeting in Winnipeg last November emphasized how dental health workers must be more cognizant of treatment for patients having a pre-existing medical condition. As part of "Homecoming '90" (University of Manitoba), several hundred dentists and auxiliaries listened to a broad and diverse group of experts in medicine, dentistry, dental hygiene and advocacy. They presented practical and clinical material to assist in the dental management of challenging patients.

Two "advocates" for the disabled presented material which was new to most of the audience. **Mr. Brian Law**, the Director of Children's Special Services, outlined portions of Manitoba's "Child and Family Service Act" which is a first of its type in Canada. The Act has two main goals; to keep handicapped children in the natural family and, to decrease institutionalization. In the first four years the Service has been able to decrease institutionalization from 250 to less than 135.

Mr. Dale Kendel, Executive Director of the Association for Community Living, outlined some of the government services for the disabled and spoke on the importance of societal attitudes in changing the terms of acceptance of the handicapped. Mr. Kendel was able to emphasize dental treatment for the handicapped by introducing two mothers. They related their personal experience in obtaining dental care for their disabled children. Their sincerity and candor impressed the audience of dentists, assistants and hygienists.

Drawing on the experience and expertise of nine members from the University of Manitoba Faculty of Medicine and the Winnipeg Health Science Centre, the audience received a wealth of knowledge related to the compromised patient during the symposium.

Topics covered were; Heart Disease (adult and paediatric), Allergies, Seizure Disorder, Asthma, Diabetes; the Psychiatric and the Mentally Handicapped

PANEL PARTICIPANTS AT THE SYMPOSIUM

Pictured below are the participants in the Winnipeg Symposium. They are members of the faculties of Medicine and Dentistry of the University of Manitoba. They are identified from the left.



Dr. Daniel Sitar, Professor of Medicine and of Pharmacology and Therapeutics; Dr. John Perry, Oral Pathologist; Dr. V.K. Pruthi, Head of Periodontology.



Ms. Ellen Brownstone, Director of the School of Dental Hygiene, and Dr. Stephen I. Ahing, Head, Section of Oral Diagnosis and Radiology.

patient. Each morning and afternoon session ended with an opportunity for audience participation, in a question and answer session.

Handicapped dental patients

Dr. Alan Milnes, Head of Pediatric Dentistry at the University of Manitoba, and

Chairman, "Homecoming '90", spoke on Management of Behavior of Dental Patients with Disabilities. Dr. Milnes indicated there are two approaches to management of the disabled patient. One is the "disability" or DOAP — the disability oriented approach to the patient. The other is POAP — the "problem" oriented

approach to the patient. "Hopefully," said Dr. Milnes, "Most of you will use POAP and not DOAP."

Dr. Milnes said in managing behavior the dental worker should observe rather than try to interpret behavior. "What are the expectations of the patient? We must be reasonable. Spend the time to teach behavior. Check the resources in your office, your staff."

Drs. John Perry and Stephen Ahing, both in the Section of Oral Diagnosis at the University of Manitoba, delivered lectures on the importance of systematic principles in history taking and determining the status of disease.

Professor Ellen Brownstone, Director of the School of Dental Hygiene in Manitoba, spoke on Preventive Dentistry for the Medically Compromised and Handicapped Dental Patient. She outlined the regimen for clinical assessment of the oral hygiene status and the assessment of oral motor dysfunction. Once the clinical measures were recorded, the proper methods for oral health care and modifications could be initiated. The preventive treatment of the patient could never be considered complete until there was



Dr. Adi E. Mehta, Professor of Medicine, Section of Endocrinology and Metabolism; Dr. Stephen I. Ahing, and Dr. Alan Milnes, Head of Pediatric Dentistry.

assurance that adequate in-service instructions were given to care-givers in the home, institution or hospital.

Dr. V.K. Pruthi, Head of Periodontology at the University of Manitoba Faculty of Dentistry, introduced the audience to the role of the chemical control of plaque in the management of periodontal dis-

eases in medically compromised and handicapped patients. Dr. Pruthi stressed conventional mechanical methods are still preferred for routine control of plaque; however, the supervised intermittent short term use of chlorhexidine can be recommended for the control of gingivitis. Δ

A new dental organization: The Society for Oral Oncology

The historic city of Boston was, on October 29th and 30th, 1984, the site of the founding of a new dental association. This organization known as The Society for Oral Oncology developed from the Society for Clinical and Experimental Oral Oncology which had met on an informal basis on a few occasions. After the inevitable debates surrounding a constitution and by-laws The Society for Oral Oncology is now a fully established and active organization with definite aims and objectives. The Society's primary purpose is to foster an interest in and knowledge of the oral and dental care of patients suffering from malignant disease. This will be accomplished via an annual scientific meeting, sub-committees on education and research, a newsletter, and a membership campaign. All dental health care workers including hygienists and assistants are eligible for membership. Physicians and nurses, especially those involved in oncology, are encouraged to join, and so add a different perspective to the new and developing discipline of oral oncology. It is noteworthy

that a significant percentage of the Society's founding and sustaining members are Canadians.

The fourth annual meeting of the Society was held in Hartford Connecticut on June 1-3, 1989. The theme for the meeting was "The Behaviour Aspects of Patients with Cancer: Diagnosis to Cure". Significant topics discussed included; a patient's first encounter with a cancer diagnosis, the economic factors in cancer therapy, and improving access to dental care for cancer patients. The research activities of members were demonstrated by presentations on; a comparison of mouthrinses in the reduction of pain and mucositis during radiotherapy, the effect of total body irradiation on salivary gland function and oral microflora, and tooth decalcifications and caries in children treated with antineoplastic therapy.

The Society's evolution is reflected by comparing its birth in the old sedate city of Boston to the site of its fifth annual meeting which will be the expounding bustling city of Orlando, Florida. This

meeting will be held at the Governor Hotel in Disney World Village from the 28th to the 30th June, 1990. The immunologic aspects of head and neck cancer will be a major topic, while practical discussions will consider the extraction and replacement of teeth in cancer patients, and the management of oral pain and bleeding in cancer patients.

All dentists, their staff, spouses and children are invited to attend this meeting which will be educational and enjoyable. Those wishing further information on the meeting should contact:

Dr. R.A. Baughman
Box J - 414
College of Dentistry
University of Florida
Gainesville, Fl. 32610

Dentists and staff interested in membership of The Society for Oral Oncology should write to:

Dr. F. Le Veque
Harper-Grace Hospital
4 WS Core
3990 John R
Detroit, MI 48201 Δ

CFDE Fellowship recipients share 1989 Thornton Award

Professor Bonnie Joy Trodden and Dr. Alan Kwong Hing were recently named to receive CFDE Fellowship awards valued at \$3,000 each.

The Canadian Fund for Dental Education Advisory Committee on Fellowship Selection has also determined each worthy of the Henry Thornton Fellowship Award.

This award was established in 1981 in recognition of Mr. Henry M. Thornton, Chairman Emeritus of Dentsply International, for his effective leadership in support of dental education and dental health in Canada. It is granted each year to the CFDE Fellowship applicant(s) considered the most worthy to receive the award, given the choice of study and the presentation of the application.

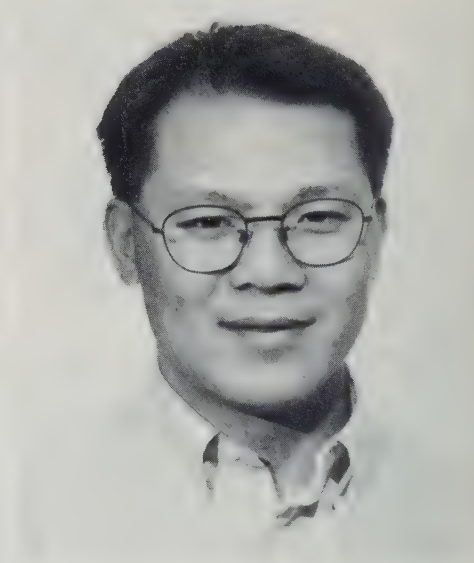
Professor Trodden has been employed by the University of Manitoba School of Dental Hygiene since 1983. She is presently completing a PhD in Dental Anthropology. Upon her return to the University of Manitoba this year,



Professor Bonnie Joy Trodden

Ms. Trodden will continue a full-time position in the school of Dental Hygiene in a tenure stream appointment.

Dr. Kwong Hing, having completed his fourth year of dental studies at the



Dr. Alan Kwong Hing

University of Western Ontario in addition to a concurrent MSc in Pathology, is pursuing postgraduate studies in Periodontics with additional training for a PhD in Basic Research. △

LES JOURNÉES DENTAIRES DU QUÉBEC 1990

An Appointment with the Future!

Start the new decade on the right foot . . . and plan to attend Les Journées dentaires du Québec 1990, at the Montreal Convention Centre, from Sunday, May 20th to Thursday, May 24th!

This annual convention, the largest dental meeting in Canada, offers all out-of-province dentists a flat registration fee of \$150.00, which includes access to all convention lectures, the technical exhibits, a lively social evening and three lunches.

Registered pre-convention clinics, featuring Dr. Clyde Schultz (San Francisco, California) on Practice Management, Dr. Lloyd Miller (Weston, Massachusetts) on Esthetics and a Temporizations Hands on Course by Dr. David Frederick (Marina Del Rey, California), will be held on Sunday, May 20th and Monday, May 21st.

Separate fees are required for these registered clinics.

The convention proper, from Tuesday through Thursday noon, will offer the following English program: Dr. Gerard Chiche (New Orleans, Louisiana), on Crown and Bridge; Patricia Fripp (San Francisco, California) on Motivation; Dr. Kenneth Zakariasen (Halifax, Nova Scotia) on Endodontics; Dr. Ken Neuman (Vancouver, British Columbia) on Imaging; Dr. Harold Shavell (Chicago, Illinois) on Restorative Dentistry; Dr. Normand Boucher (Wayne, Pennsylvania) on Periodontics; Dr. Jocelyne Feine (Montreal, Quebec) on Temporomandibular Disorders; Dr. Robert Langlais (San Antonio, Texas) on Radiology and Oral Manifestations of Sexually-Transmitted Disease; Dr. Stanley Malamed (West Hill, California) on Pain

Control and Emergency Medicine; Dr. Steven Adair (Rochester, New York) on Pedodontics; Dr. Robert Hilgers (Virjo, California) on Orthodontics and a Heart-Saver Course with Mr. Brian Payne (Montreal, Quebec). Table clinics will also be presented on Wednesday afternoon. A French program is also available.

During the convention, 305 booths in the vast Exhibit Hall will unveil the latest discoveries of the dental industry! In addition, valuable exhibit door prizes will be drawn daily!

For information or a preliminary program, please contact:

Les Journées dentaires du Québec
625 René-Lévesque Blvd. West
Montreal, QC H3B 1R2
Tel: (514) 875-4890/875-8511
Fax: (514) 875-1561 △

Mascots give organizations added dimension

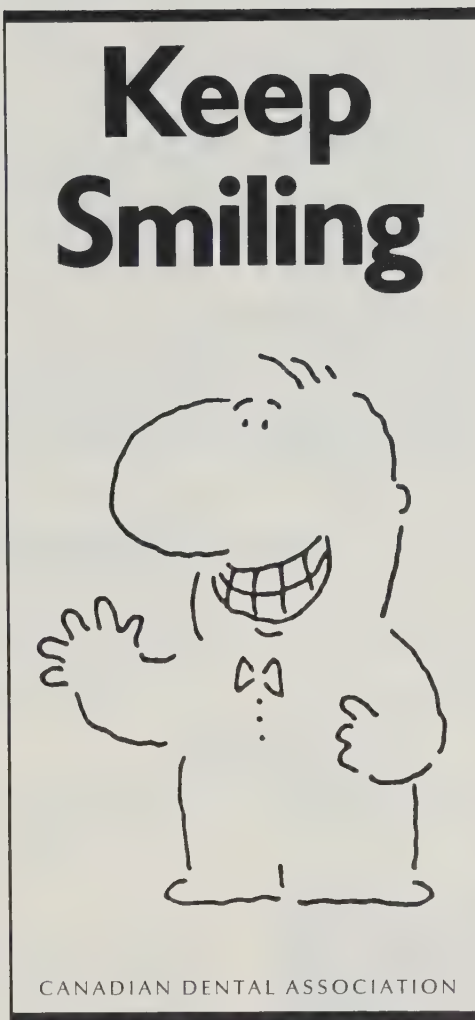
Until this year, "Bob" was a mascot waiting to happen. Millions of Canadians have seen Bob carry the banner for dental health via the now famous Five Point Prevention Plan. You've seen him introduce the Plan in magazine inserts nationally, on posters, shirts, and appointment cards. Now Bob has come to life as a mascot as well, providing an added dimension for activities and events during Dental Health Month and all year round. Bob Live creates a highly visible image, and will attract the attention of children, adults, and the media alike.

Mascots are everywhere. You've seen them at the ball game, and at virtually every sporting event imaginable. You've seen them in parades, and you've seen them in shopping malls promoting a myriad of products. You've seen them standing just beyond the gate of any fun place in the world, welcoming you with open arms. You've seen them bring a moment of joy and relief to a child in hospital. Young or old, the appeal of mascots is universal.

On the surface mascots appear to be cheerful, furry costumed characters that refuse to let down their smiles for even a moment. They're always busy waving, cheering on the home team, hugging a child, or handing out free samples.

But the mascot business is taken very seriously by many corporations and organizations across North America. Research recently conducted by CDA revealed that a well-managed mascot program can garner substantial benefits for any business or association. Most of the nine companies CDA spoke to reported that their mascot program held a very important position in their overall strategic marketing plan.

The Disney Corporation is a prime example. Mickey and Minnie Mouse have been their goodwill ambassadors for approximately sixty years; successfully marketing the Disney image to all corners of the globe. Whether it's Mickey and



Minnie waving to the public from their own personal forty foot stretch limousine, Goofy and Donald Duck marching down Mainstreet Canada, or Peter Pan and Wendy paying a visit to a school, the result is always the same: increased awareness of and identification with the Disney image.

Tele-Direct, the Yellow Pages people, told CDA that the sole appearance its mascot Telly (a giant, walking Yellow Pages book) made at the Skydome in Toronto during a Blue Jay game made

their investment in mascot development well worth while. Fifty thousand baseball fans waved back at Telly as he crossed the field, and executives at Tele-Direct enjoyed seeing their mascot on the JumboTron, the biggest screen in the world.

General Motors, Duracell, General Foods, Imperial Oil-Esso and the 1988 Winter Olympic Games are some other companies that have used a mascot program successfully. (Have you ever noticed that the first big piece of news to reach the public from the successful bidder of an Olympic Games is that city's introduction of their official Olympic Mascot?)

Entertainment Research Group is a California company that specializes in manufacturing mascots for a number of companies. Ed Breed, President of ERG and formerly with Lucasfilms (of Star Wars fame) told CDA, "We've learned that in most people's minds, these loveable, huggable characters can do no wrong, and that carries over to the product or event. They make people smile and they encourage people to trust whatever they represent. A billboard or an ad is essentially passive. On the other hand a mascot character walks up to you, shakes your hand, and makes you pay attention to the item being promoted."

CDA's research has shown that mascots appeal predominantly to children. They are friendly, non-threatening, and cuddly to hug. By implication, mascots also appeal to the parents of children, and to the child inside all of us.

Dental Health Month is about promoting oral health to all Canadians. Whether it's Bob Live in person, or Bob's big smile radiating from promotional materials, the CDA offers dentists the right tools to communicate more effectively. Δ

For more information about Bob Live, please contact Kimberley Allen-McGill at the CDA. (Remember to use the toll-free number for your region.)

AIDS and CDIP

AIDS and Disability Insurance

As a dentist, the topic of AIDS is a problem to be faced every day that you practice. Safety precautions, patient relationships and sterilization techniques come into focus. You are inundated with stories about AIDS in the media and the last thing you need is contact with an insurance agent or broker who gives you warnings about what will happen to CDIP because of AIDS. Dentists have been told, "Premiums for group plans will go through the roof", "Your premium rates will more than double and your insurance benefits will be cut in half" and even, "Your disability plans will collapse because of heavy claims".

Scare Tactics

The above statements are scare tactics that may be used by some agents or brokers to sway you into buying private insurance. These statements are completely unfounded.

It is true that insurance companies in Canada have adopted precautions in the face of the unknown. Testing for AIDS is now a standard procedure in the industry for life and disability insurance. Some insurance companies have increased their premium rates and many companies have set up reserves for future AIDS claims.

There is no doubt that the question of AIDS and its impact on insurance is a serious problem, but dentists should not be unduly alarmed by statements of impending disaster.

The AIDS Status At This Time With CDIP

To this date, CDIP has received only two claims for disability benefits related to AIDS. Our insurer has record of only one death claim attributable to AIDS.

The premium rates for life and disability plans with CDIP are guaranteed to December 31, 1991 and currently there are no plans to increase rates in these plans after this time.

Common Causes for Claims

There are other types of claims that are creating greater problems for the CDIP than those attributable to AIDS. We are seeing an increasing frequency of claims

due to depression, stress, burnout and related problems. Unfortunately dentists becoming disabled for these reasons are often less than age 45 and the possibility that the claim will be of long duration is almost a certainty.

The CDIP Long Term Disability Plan insures more than 7,800 dentists. Approximately 400 NEW claims are recorded each year. This high volume means that the CDIP experience is such that we see nearly every cause one can imagine, when it comes to dentists and disability claims

Claims Assistance

What should a dentist do if a disability

claim situation arises? Report the claim to CDSPI without delay. You have 45 days from the onset of a claim to advise us. Secondly you will need to file your claim using forms from the Claim Information Kit which CDSPI will send you. You have 90 days from the onset of disability to substantiate your claim by providing written documentation. Failure to observe this timeframe could result in non-payment of the claim.

Prompt and fair settlement of a claim is a number one priority for the insurer Metropolitan Life, and CDSPI.

If additional information is needed, call CDSPI. We are here to help. Δ

CDA Retirement Savings Plan

Unit values: (Funds are valued weekly)

Fund

Bond & Mortgage Fund
Common Stock Fund
Money Market Fund
Balanced Fund

Unit values as at
January 31, 1990 December 30, 1989

71.23436	71.63473
16.53296	17.25550
48.11049	47.70000
29.61363	30.25725

G.I.C. Fund

Term

1 yr
2 yr
3 yr
4 yr
5 yr

*Interest rates as at
January 31, 1990 December 30, 1989

11.10%	11.25%
10.80%	10.85%
11.00%	11.00%
10.80%	10.90%
10.80%	10.90%

(*rates subject to change without notice.)

Total Assets (Market value) of the Plan as of:

January 31, 1990	December 30, 1989
\$118,607,583	\$118,485,546

For further information:



Write:

CDSPI

Retirement Services Dept.
Suite 600
2 Lansing Square
Willowdale, Ontario
M2J 4Z3

or phone, toll-free:

Western and Atlantic Canada
and Ontario Area Code 807
only 1-800-268-5418
Quebec and Ontario, (except Area
Code 807) 1-800-268-3411
Metro Toronto Area 497-7117

Ottawa 1990:

Convention Countdown

CDA's Biggest Scientific Program Ever



Speakers Galore

Over 50 **different** presentations will be delivered during the 4 1/2 day 1990 Pre-Convention and Convention proper. Most sessions will be 1/2 day presentations. The rest will vary from one hour to a full-day.

The 1990 Scientific Program will offer sessions covering all aspects of dentistry and there are no repeat programs scheduled. Undoubtedly, deciding which of the many

first-class, English and French sessions to attend, will be the biggest problem delegates face.

Ottawa — This Year's 'Convention City'

Ask any Ottawan about their fair city and they will respond enthusiastically that if you haven't been to Ottawa in the past four years you haven't experienced the "new" Ottawa! It's the Ottawa with a skyline under rapid development, a skyline that now envelopes two spectacular national treasures — the new National Art Gallery and the glamorous Canadian Museum of Civilization. Two fully renovated national museums are also part of the revitalized Ottawa — the Museum of Science and Technology and the Aviation Museum.

Ottawa offers a cosmopolitan atmosphere without the busy 'big city' annoyances. It offers a great selection of exquisite dining facilities in and around town and much, much more!

The Price is Right!

All CDA members can enjoy complimentary registration to the 2 1/2-day convention proper if they register early, while non-members and dentists outside of Canada can enjoy a low registration fee. Furthermore, the Pre-Convention program will offer you exceptional value for your dollar. In an age characterized by escalating prices and soaring costs it's a bargain you can't afford to miss!

Exhibits with Something Extra

The demand for exhibit space this year is overwhelming. The exhibit hall will offer the largest variety of dental exhibits ever drawn together at a CDA Convention, with an international flair. Exhibitors will be vying for your attention with innovative and attractive displays showcasing the state-of-the-art technology and products which will propel dentistry into the 1990s.

The Entire Dental Team — Together Again

Dentists, hygienists, assistants, office staff and technicians will once again share in the learning experience. The Convention Committee is working closely with representatives from the Canadian Dental Hygienists' Association and the Canadian Dental Assistants' Association to finalize a convention program that will satisfy the needs of each and every delegate!

August — CDA's Convention Month

Judging by CDA's Edmonton 1988 experience, which was revived in Vancouver in 1989, August seems to be a good convention month. Attendance figures indicate that although some find it difficult to tie together business, family and vacation, others benefit from this approach. Consequently, we're once again spreading our wings and flying with the idea.

Spouses' and Children's Programs — A Fun Social and Cultural Affair

This year the Children's Program and the Spouses' Program will focus on Ottawa's most recently developed attractions. Both programs promise two exciting days of fun-filled and educational activities. Specific program details will be highlighted in next month's issue of the *CDA Journal*.

With Ottawa as our host city we hope to ensure that the 1990 CDA Convention is a 'capital' event in every sense of the word! And, based on the demand for exhibit space coupled with the increased volume of membership inquiries regarding the 1990 Convention, we suspect this year's convention may surpass the success of our Vancouver experience, smashing the attendance record set in 1989! Make plans to be there to share in the excitement!

*Dr. Michel Jahjah,
General Chairman
CDA Conventions*

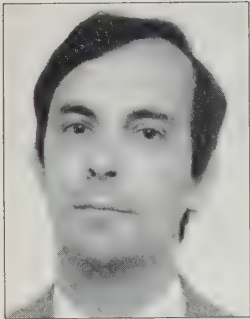


Excitement is blooming in 1990's CDA Convention City.
(Industry, Science and Technology Canada photo)

Ottawa 1990

1990 Pre-Convention Program Highlights

Five Super Courses!



Saturday & Sunday

Torsten Jemt, D.D.S., PhD.

Associate Head of Branemark Clinic
Gothenburg, Sweden

"Training Course on Osseointegrated Implants"

This course is designed to give prosthodontists and general practitioners knowledge about the prosthetic procedures of the Branemark System.

Topics to be addressed will include:

- Introduction and review of clinical and physiological problems associated with edentulism and partial edentulism.
- Presentation of conventional treatment concepts including comments on other implant systems.
- Review of the scientific background of the Branemark system including biological considerations, biomechanical aspects and technical engineering aspects.
- Brief overview of surgical procedures and presentation of surgical aspects of significance for prosthetic rehabilitation.
- Prosthetic treatment planning, patient selection, indications and contraindications.
- A detailed presentation of prosthetic, clinical and technical aspects covering various techniques and the use of different materials.
- Hands-on training that includes presentation of components, instruments and the different steps involved in the clinical treatment sequence.
- Presentation of patients in various stages of treatment including completed patients.
- Discussion of possible complications and how to handle them.
- Discussion of patient control and maintenance program including radiographical technique and computer possibilities in long term patient follow-up.

11-hour Course

Saturday - Full-day Lecture

Sunday - Hands-on

Enrolment limited to 40



Sunday

Irvin A. Roseman, D.D.S.

Wilmington, North Carolina

"Endodontics for the 1990's"

This seminar will bring to the practitioner the principles necessary to perform predictable and effective endodontic therapy. Through step-by-step procedures, illustrations and case presentations which will encompass all current concepts in root canal therapy, the participants will easily be able to incorporate these techniques profitably and efficiently into their practice.

The course will include lectures to cover theoretical points on

- Diagnosis
- Instrument Length
- Instrumentation Complete
- Mast Cone Placement & Completion
- Follow-up
- Post & Core
- Trauma
- Bleaching & Restoring Endo Teeth

The hands-on participation will cover Molar Endodontics. Participants will have the opportunity to cleanse, shape and obturate canals using simulated tooth models. They will also be introduced to the use of the Endotec - a new technique-sensitive procedure.

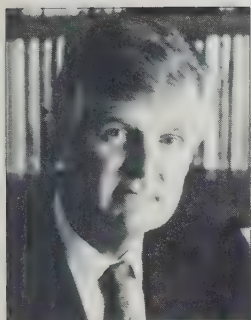
Class size will be limited to 40 so each participant can be assured of individual attention and to maximize the learning experience.

**All courses complete to allow you to apply what you learn
the moment you return to your office!**

Ottawa 1990

1990 Pre-Convention Program Highlights

Five Super Courses!



Sunday

Dick Barnes, D.D.S.
Alpine, Utah

"Building a More Successful Practice"

Some of the topics that will be emphasized during the program are:

- Lowering stress and increasing satisfaction with dentistry as a profession.
- Staying in control of your practice by recognizing and supporting the responsibilities of your staff.
- Controlling your appointment book for maximum production. How to not be just busy, but busy and profitable.
- How to comfortably convince your patients to have the dentistry they need.
- Understanding patient behaviour, or what to say to "I'll think it over" patients.
- The pros and cons of dental advertising.
- Increase new patient flow despite increased competition.
- The art of case presentation - a step-by-step procedure for achieving acceptance of treatment each and every time.
- Financial arrangements you and your patient can live with.
- How to establish appropriate fees - and get them.
- How to double production with existing patients.



Saturday

William Strupp, D.D.S.
Clearwater, Florida

"Predictable Anterior Crown and Bridge"

Clinical techniques leading to excellent and predictable esthetic results in anterior crown and bridge dentistry.

Topics covered during this pre-convention course will include:

- Tooth Preparations
- Tissue Management in Critical Cosmetic Zones
- Impression Procedures - How to NEVER Miss
- Total Hemorrhage Control
- Provisional Restorations by Staff with Perfect Fit/Function/Esthetics
- Materials/Equipment/Supplies Necessary to Do a First Class Job
- Soft Tissue Models for Soft Tissue Success
- Transmitting Esthetic Information to the Laboratory



Saturday

Imtiaz Manji, B.Sc.
Vancouver, B.C.

"The First Step to High Tech"

Each participant will begin the seminar with an unassembled computer in front of them. Working from the ground up, Mr. Manji will explain computer technology in straight-forward, non-technical terms and guide the participant through assembly of their own computer.

Once the computers have been assembled, they will be powered up and Mr. Manji will continue his discussion about popular computer programs and dental practice management software.

As a participant, you will have an opportunity to see each of the programs discussed - from MS-DOS and Lotus 1-2-3 to sophisticated dental software with which you can record patient information and bill dental procedures. The seminar is assisted by five experienced computer users so everyone will have plenty of opportunity to get their questions answered.

4-hour Presentation
Enrolment limited to 20

President, ExperDent Consultants Inc., Founder, Exan Technologies Inc., Mr. Manji travels extensively to deliver his unique perspective on high-tech, high-touch practice management to Canadian dentists. He has a quarterly column "Practicing for Success" in which he reveals how his down-to-earth approach to technology has assisted many Canadian dentists to attain tremendous increases in productivity and financial stability.

**All courses complete to allow you to apply what you learn
the moment you return to your office!**

Ottawa 1990 ■ Preliminary Convention Program

The Convention Program is designed for everyone: Dentists, Hygienists, Assistants, Technicians, Office Personnel and Spouses. Some courses will be of particular interest to certain groups, however many courses

Monday, August 27th

Allen Kincheloe, D.D.S.

Houston, Texas

"Esthetics for the 1990's"

Murray Cuff, D.D.S., M.R.C.D.(C)

Edmonton, AB

"Dental Management of the Medically Compromised Patient"

Norman Levine, D.D.S., M.Sc.D., F.R.C.D.(C)

Toronto, ON

Dentistry for the Disabled

Ronald Feinman, D.M.D.

Atlanta, GA

"Porcelain Laminates - A Seven-Year Update"

"Chemical Alterations of Enamel Color - The Bleaching Boom"

Marion Balla, M.Ed., M.S.W.

Ottawa, ON

"Effective Communication with Staff & Clients"

John Hardie, B.D.S., M.Sc., F.R.C.D.(C)

Ottawa, ON

Infection Control

Lendon Smith, M.D.

Portland, OR

"Humour as a Healer"

Tom Limoli, D.D.S.

Atlanta, GA

Periodontics and Fraud

Paul Demers, D.D.S., M.Sc.

Halifax, NS

"Rationale for Antibiotic Selection"

Franklin Weine, D.D.S., M.S.D.

Chicago, IL

"What's New in Endodontics"

Tom Harle, D.D.S., DIP (Prosth)

Toronto, ON

"Osseointegration: Clinical Aspects"

Mark Matthews, B.Sc., D.D.S.

Halifax, NS

"Correction of Dentofacial Deformities"

Maureen Locherer, P.D.A.

Ottawa, ON

Equipment Maintenance

Stéphane Schwartz, D.D.S., M.S.D.

Montreal, PQ

Pedodontics

Royal College of Dentists - Aesthetics

Matthias Hourigan, D.D.S.

Kansas City, MO

"Camera Clinic for Slide Shooters"

Franklin Weine, D.D.S., M.S.D.

Chicago, IL

"Preparation of Curved Canals"

William Bottomley, D.D.S., M.S.

Washington, DC

"Drugs Your Patients Take"

Annette Ashley Linder, R.D.H., B.S.

Richmond, VA

Soft Tissue Management

Glen McGivney, D.D.S.

Buffalo, NY

Partial Dentures

Tom Limoli, D.D.S.

Atlanta, GA

Insurance

Ralph Phillips, M.S., D.Sc.

Indianapolis, IN

Dental Materials

Marion Balla, M.Ed., M.S.W.

Ottawa, ON

"Stress Management in Personal Relationships"

Joseph Chasteen, D.D.S., M.A.

Seattle, WA

"The Joy of Four-Handed Dentistry"

Dianne Rekow, M.S.M.E., D.D.S. PhD.

Minneapolis, MN

"CAD/CAM Systems: The Technology"

Maureen Locherer, P.D.A.

Ottawa, ON

Sterilization Techniques

Imtiaz Manji, B.Sc.

Vancouver, BC

"High Tech Practice Management"

Ottawa 1990 ■ Preliminary Convention Program

will be of interest to more than one group. As the convention date draws nearer we will suggest those sessions which may be of special interest to specific members of the dental team.

Wednesday, August 29th (AM only)

Matthias Hourigan, D.D.S.

Kansas City, MO

"A Bread & Butter Office - Oral Surgery Review"

William Bottomley, D.D.S., M.S.

Washington, DC

"Treatment of Oral Lesions"

Harry Rosen, D.D.S., M.R.C.D.(C)

Montreal, PQ

Geriatrics and Dentistry

Glen McGivney, D.D.S.

Buffalo, NY

Complete Dentures

Dianne Rekow, M.S.M.E., D.D.S., Ph.D.

Minneapolis, MN

"CAD/CAM Systems: Challenges & Possibilities"

Joseph Chasteen, D.D.S., M.A.

Seattle, WA

"A Hiring Strategy for Dental Team Members"

French Program

Leon Lemian, D.D.S., M.S.D., M.R.C.D.(C)

Montreal, PQ

Endodontics

Stéphane Schwartz, D.D.S., M.S.D.

Montreal, PQ

Pedodontics

Huan Pham, D.D.S., M.S.

Montreal, PQ

Oral Surgery

Jacinthe Larivée, D.D.S., M.S.

Montréal, PQ

Periodontics

Radiology



In 1989, many booths crowded the exhibit floor — we aim to beat the record this year!
(CDA photo)

1990 CANADIAN DENTAL ASSOCIATION CONVENTION

August 25 - 29, 1990 ■ Ottawa, Ontario



Hotel Reservation Form

Please check appropriate category:

☐ Dentist ☐ Hygienist ☐ Assistant ☐ Exhibitor ☐ Office Personnel ☐ Other (please specify) _____

Name: _____

Address: _____

City: _____ Province: _____ Postal Code: _____

Telephone: () ()
(Residence) (Office)

Type of Room:

☐ Single ☐ Double ☐ Twin ☐ Other (please specify) _____

Indicate first three hotel choices (by numbering the boxes):

- ☐ Westin Hotel (CDA Headquarters) \$ 115.00 single / double
☐ Château Laurier Hotel \$ 112.00 single / double
☐ Four Seasons Hotel \$ 110.00 single / double
☐ Novotel \$ 89.00 single / double
☐ Minto Place Suite Hotel \$ 99.00 single / double

Arrival Date: _____

Departure Date: _____

Arrival Time: _____

In order to reserve a room, a guarantee for the first night is essential. The guarantee will apply to the first night ONLY. To cancel your reservation advise the CDA at least three (3) days prior to your arrival.

☐ MasterCard ☐ American Express ☐ VISA

Card Number: _____

Expiry Date: _____

Signature: _____

Send Reservation Form to:

CDA Conventions
Canadian Dental Association
1815 Alta Vista Drive
Ottawa, Ontario
K1G 3Y6

DEADLINE for Reservations: July 10, 1990

Ottawa 1990

Class Reunions at the CDA Convention

The Perfect Opportunity to Renew old Ties

The CDA Convention Committee invites you to plan a 'class reunion' during the 1990 Convention. If you are interested in drawing together old friends and colleagues during the Convention, please write, outlining your requirements, to:

CDA Conventions
1815 Alta Vista Drive
Ottawa, Ontario
K1G 3Y6

For more information or assistance in planning your reunion, call CDA Conventions at (613) 523-1770



Getting together for a good time in the Capital.
(Industry, Science and Technology Canada photo)

Table Clinics

Table Clinics are defined as
a brief table top presentation
or demonstration
of five to ten minutes duration
using visual aids, and repeated
over a 2 1/2 hour period.

**Those interested in presenting,
write to:**

TABLE CLINICS
CDA Conventions
1815 Alta Vista Drive
Ottawa, Ontario
K1G 3Y6

Airline Reservations

DENTISTS WHO PRE-REGISTER BY JULY 10, 1990, WILL BE ELIGIBLE FOR A
**DRAW FOR TWO ROUND-TRIP TICKETS TO ANY AIR CANADA
DESTINATION IN EUROPE OR NORTH AMERICA (THE WINNER MUST BE
PRESENT AT THE OPENING CEREMONY ON SUNDAY AUGUST 26.)**

Our meeting is registered with Convention central, Air Canada's exclusive reservations service for convention delegates.

Benefits include:

CONVENTION FARE: Save at least 15% with the new Convention fare available only through Convention Central. Should you qualify for other fares that represent greater savings, your reservations will be confirmed at the lowest available rate. (Certain advance purchase conditions apply.)

CAR RENTAL: If you like the convenience of a rental car when you arrive, Air Canada has arranged an attractive convention rate with Hertz, available only through Convention Central.

TO RESERVE: Call the toll-free number below and identify yourself and your meeting. If you customarily use a corporate travel department or travel agent, have them call on your behalf.

Call: 1-800-361-7585

Weekdays 9:00 a.m. to 8:00 p.m. EDT/EST

Ottawa 1990

Spouses' Program

**Look forward to an active
Spouses' Program.**

Two days of learning and discovery

Preliminary program only – More to come!

Lectures featuring Marion Balla, M.Ed., M.S.W. and Lendon Smith, M.D. a.k.a. 'The Children's Doctor'. Balla, who will lecture on parenting, has been involved in the counselling field since 1969. She is Co-Director of Ottawa's Adlerian Centre for Counselling and Education. Smith is author of *The Encyclopedia of Baby and Child Care*, *New Wives Tales*, *Improving Your Child's Behavior Chemistry*, *Food for Healthy Kids*, and *Feed Your Kids Right*.

The Spouses' Program will also include one luncheon – the perfect opportunity for participants to socialize and make new acquaintances.

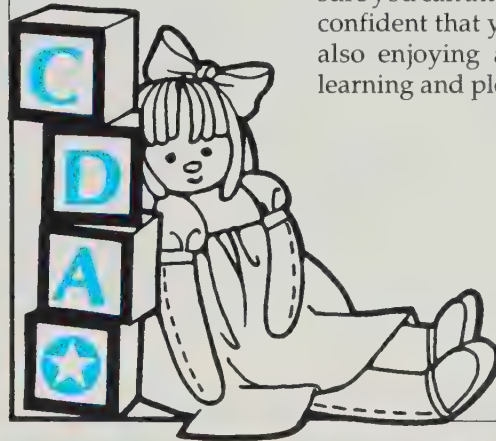
Details regarding tours to local attractions which will also form part of the 1990 Spouse Program will be highlighted in future issues of the *CDA Journal*.

Children's Program

Ottawa is the perfect city to host a Children's Program packed with educational and cultural activities. This year's program will include visits to some of Ottawa's many attractions, including the newly renovated Museum of Science and Technology and the Canadian Museum of Civilization. Two picnic lunches are also part of the deal!

The Children's Program aims to ensure you can attend the Convention confident that your youngsters are also enjoying an exciting day of learning and pleasure.

Enrolment is limited to children six (6) years of age and older.



The 1990 Spouses' and Children's programs will provide a window on Ottawa's newest landmarks.
(Industry, Science and Technology Canada photo)

Ottawa 1990

Canada's Capital - More than just Politics

Ottawa is moving up the list of Canada's top cities and this year you have an opportunity to discover why! By attending the 1990 CDA Convention you will be presented with the perfect opportunity to discover the 'new' Ottawa, which, according to Metro Ottawa Office Guide editor, Beverly Goldfarb, is "a city that offers a unique blend of manageable size, plentiful green space, accessible recreation, abundant arts and culture in addition to an expanded private sector and a local economy on the boil."

Sure, we can hear some audible groans: "Ottawa, the stuffy city of bureaucrats, where all the 'suits' walk around in a hot air environment thick with politics." Ahhh, but don't believe everything you hear — come and see for yourself — Ottawa is much more than just politics!

Read on and share in the knowledge the publishers of Ottawa's *Business and Leisure* magazine are quick to impart when luring the hesitant tourist:

There is something very Canadian in a capital whose borders reach out to encircle thousands of acres of farmland, mountain and marsh — so modest in scale, park-like in spirit and charming in adornment.

Keeping busy here can mean everything from a day of cycling down the long, green reaches of the Ottawa River to shopping for carts or art in the Byward Market; it can mean a night of dining and dancing in Hull, or a rainy day spent exploring some of the 40,000 works of art at the National Gallery.

Ottawa, for all its beauty and sophistication, is a young city — not much more than 160 years old. History as we know it in the region began around the time of Samuel de Champlain's 1613 voyage up the Ottawa River. He was one of the first Europeans to see the site of Canada's future capital when he stopped at the Chaudière Falls to watch his Indian guides make ceremonial offerings of tobacco to the river. Two long centuries were to pass, however, before settlers followed him up the river, and it was 1826 before their axes were heard biting into the forest where Ottawa now stands.

Things certainly have changed since then, and they continue to do so. What was once a viable logging community has been transformed into an ever-growing metropolis with a metropolitan population of more than 800,000. And, amazingly, growth has occurred without turning the city into yet another urban wasteland.

Ottawa is a city where soaring green spires and tall monuments are set against a backdrop of green lawns and wooded hillsides. The Greenbelt which surrounds the city acts as a door into nature for people who visit, or live, in the capital.

Canada's multicultural make-up is very clearly expressed in the capital's restaurants. When in Ottawa, be sure to visit Chinatown

on Somerset Street West and Little Italy on Preston Street. Or cross the river and discover some of the quaint French restaurants serving up French cuisine with flair and flavour.

Theatre buffs may wish to take in an evening of entertainment at the National Arts Centre which houses Ottawa's largest theatres, or perhaps digest some of the local talent at the Great Canadian Theatre Company or the Théâtre de l'Île in Hull.

Ottawa's trendy night life spot is located in Lower Town near the Byward Market, a short jaunt from the Chateau Laurier. The streets here are lined with discos, bars, cafés, restaurants and wine cellars, all in a historical setting. On the other side of the river, in Hull, the bars tend to be bigger, louder and open later...the choice is yours!

There's plenty to see and do in the Nation's Capital, so make your plans *now* and look forward to discovering a capital on the move while participating in CDA's best convention ever!



Ottawa's Rideau Canal — park-like in spirit and charming in adornment.
(Industry, Science and Technology Canada photo)

Root Caries

Les caries radiculaires

1. Bauer, J.G. and others. "The reliability of diagnosing root caries using oral examinations." *Journal of Dental Education*. Nov. 1988; v. 52(11), pp. 622-9.
2. Beck, J.D., Kohout, F. and Hunt, R.J. "Identification of high caries risk in adults: attitudes, social factors and diseases." [review] *International Dental Journal*. Dec. 1988, v. 38(4), pp. 231-8.
3. Beck, J.D. "Trends in oral disease and health." *Gerodontology*. Spring 1988; v. 7(1), pp. 21-5.
4. Frank, R.M., Steuer, P. and Hemmerle, J. "Ultrastructural study on human root caries." *Caries Research*. 1989; v. 23(4), pp. 209-17.
5. Fure, S. and Krasse, B. "Comparison between different methods for sampling cariogenic microorganisms in persons with exposed root surfaces." *Oral Microbiology and Immunology*. Dec. 1988; v. 3, no. 4, pp. 173-6.
6. Hunt, R.J., Eldridge, J.B. and Beck, J.D. "Effect of residence in a fluoridated community on the incidence of coronal and root caries in an older adult population." *Journal of Public Health Dentistry*. Summer 1989; v. 49(3), pp. 138-41.
7. Jensen, M.E. and Kohout, F. "The effect of a fluoridated dentifrice on root and coronal caries in an older adult population." *Journal of the American Dental Association*. Dec. 1988; v. 117(7), pp. 829-32.
8. Keltjens, H. and others. "Epidemiology of root surface caries in patients treated for periodontal diseases." *Community Dentistry and Oral Epidemiology*. Jun. 1988; v. 16(3), pp. 171-4.
9. Leverett, D.H. "Effectiveness of mouthrinsing with fluoride solutions in preventing coronal and root caries." *Journal of Public Health Dentistry*. 1989; v. 4(5 Spec No), pp. 310-6.
10. Levy, S.M. "The epidemiology and prevention of dental caries in adults." [review] *Compendium*. 1988; Suppl 11, pp. S390-8.

11. Locker, D., Slade, G.D., and Leake, J.L. "Prevalence of and factors associated with root decay in older adults in Canada." *Journal of Dental Research*. May 1989; v. 68(5), pp. 768-72.
12. Manji, F., and others. "Pattern of dental caries in adult rural population." *Caries Research*. 1989; v. 23(1), pp. 55-62.
13. Mount, G.J. "Clinical considerations in the prevention and restoration of root surface caries." *American Journal of Dentistry*. Aug. 1988; v. 1(4), pp. 163-8.
14. Ogaard, B. and others. "In vivo progress of enamel and root surface under plaque as a function of time." *Caries Research*. 1988; v. 22(5), pp. 302-5.
15. Retief, D.H. and others. "Relationship between cementum fluoride concentration and root caries experience." *Gerodontology*. Feb. 1988; v. 4(1), pp. 28-31.
16. Schüpbach, P. and others. "Human root caries: histopathology of initial lesions in cementum and dentin." *Journal of Oral Pathology and Medicine*. Mar. 1989; v. 18(3), pp. 146-56.
17. Sheth, J.J. and others. "Restoration of root caries with dentinal bonding agent and microfilled composite resin: 1-year clinical evaluation." *Gerodontology*. Apr. 1988; v. 42(2), pp. 71-7.
18. Vehkalahti, M.M. and Paunio, I.K. "Occurrence of root caries in relation to dental health behaviour." *Journal of Dental Research*. Jun. 1988; v. 67(6), pp. 911-4.
19. Vigild, M. "Dental caries and the need for treatment among institutionalized elderly." *Community Dentistry and Oral Epidemiology*. Apr. 1989; v. 17(2), pp. 102-5.
20. Wallace, M.C., Retief, D.H. and Bradley, E.L. "Incidence of root caries in older adults." *Hawaii Dental Journal*. Aug. 1988; v. 19(8), pp. 8.
21. Widdop, F.T. "Caring for the dentate elderly." *International Dental Journal*. Jun. 1989; v. 39(2), pp. 85-94.

New Acquisitions

Hegenbarth, E.A. *Creative ceramic color: A practical system*. Quintessence, 1989.

Lang, N., Gipp, A. and Grendelmeier, A. *Wax-up for functional occlusion*. Quintessence, 1989.

Merrill, R.G. *Oral and Maxillofacial surgery clinics of North America. Disorders of the TMJ II: arthroscopy*. Saunders, 1989.

Mongini, F. and Schmid, W. *Cranio-mandibular and TMJ orthopedics*. Quintessence, 1989.

Muraoka, H. *A color atlas of complete denture fabrication*. Quintessence, 1989.

One copy of the above package of articles is available for \$5.00 to all CDA members and for \$10.00 to non-members. (Ontario residents, please include 8% sales tax.)

LIBRARY SERVICES

As a convenience to all CDA members in the various time zones in Canada, it is now possible to call the CDA Library, between 4:30 pm and 8:30 am Ottawa time, in addition to regular library hours (8:30-4:30 EST)

After hours: (613) 523-5482

Daily: 1-800-267-6354 (Western Canada and area code 709)

1-800-267-6364 (Eastern

Canada excluding area code 709)

Envoy: CDN.DENTAL.LIB

FAX: 613-523-7736

Les membres de l'ADC peuvent obtenir pour 5\$ et les non membres pour 10\$ une copie des articles de la bibliographie ci-dessus.

SERVICES DE BIBLIOTHÈQUE

Pour mieux servir les membres de l'ADC habitant dans les différentes zones horaires du Canada, la Bibliothèque de l'ADC dispose maintenant d'un service téléphonique de 16h30 à 8h30, heure d'Ottawa, en plus des heures ordinaires (de 8h30 à 16h30, HNE).

En dehors des heures ordinaires: (613) 523-5482

Aux heures ordinaires:

1-800-267-6354 (l'Ouest du Canada et la région dont le code est 709)

1-800-267-6364 (l'Est du Canada, sauf la région dont le code est 709)

Programme informatique

Envoy: CDN.DENTAL.LIB

FAX: (613) 523-7736

DONNEZ DU MORDANT À VOTRE CARRIÈRE!

Profitez du Programme de formation
des dentistes militaires

Saisissez



**l'occasion tout à fait
exceptionnelle
d'obtenir un diplôme en médecine
dentaire et d'entamer
une carrière militaire enrichissante.**

De nombreux avantages:

- Prestation gratuite de soins médicaux et dentaires;
- vingt jours ouvrables de congés payés par année pendant les études;
- règlement des frais d'inscription à l'université, des frais d'adhésion à une association d'étudiants et à la bibliothèque, ainsi que des frais liés aux soins de santé;
- emploi d'été garanti et salaire mensuel à partir de l'enrôlement dans le programme jusqu'à la remise du diplôme; et
- allocation gratuite d'instruments et de matériel dentaire.

Ce programme est offert à tous les étudiants et étudiantes en médecine dentaire.

Pour de plus amples renseignements, communiquez avec le centre de recrutement le plus près de chez vous ou téléphonez-nous à frais virés. Vous nous trouverez dans les Pages Jaunes^{MC} sous la rubrique «Recrutement».



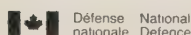
**Choisissez une carrière,
vivez une aventure**

**FORCES
ARMÉES
CANADIENNES**

RÉGULIÈRE ET DE RÉSERVE



Canada



Défense Nationale
National Defence

1990 Calcitek[®] Professional Training Courses

Featuring Integral[®] Biointegrated Dental Implants

OVERVIEW

Philadelphia, PA March 9
University of Pennsylvania

EXTENDED

New Orleans, LA March 28-30
Louisiana State University

PROSTHETIC

Salt Lake City, UT April 7
St. Mark's Hospital

Boston, MA* May 4
Tufts University

Dallas, TX May 18-19
Hyatt Regency Dallas at Reunion

San Francisco, CA June 1-2
University of the Pacific

*This will be a 1-day "advanced" course. Previous knowledge of implant prosthetics recommended.

RESORT

Boca Raton, FL Implant Center of the Palm Beaches
March 16-17 "Basic Surgery"
April 6-7 "Advanced Surgery"
April 13-14 "Advanced Prosthetics"
April 27 "Team Integration"
May 4-5 "Basic Surgery"

SYMPOSIUM

Riverside, CA April 1-2
Loma Linda University

Coeur d'Alene, ID August 12-15
Meeting Site to be Determined

SURGICAL MINI-RESIDENCY

San Diego, CA March 22-24
(Escondido) April 19-21
June 14-16
August 23-25
October 11-13
November 8-10

PERIO FACULTY

Boston, MA* March 10-11
Boston Marriott Long Wharf Hotel

San Diego, CA* March 24-25
Embassy Suites Hotel

*Tuition-free courses offered exclusively to restorative dentists and full-time faculty teaching post-doc perio.

For registration and course specifics contact:

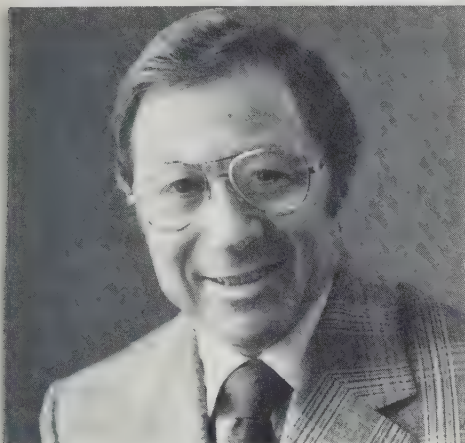
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Dr. Harry L. Gelfant of Vancouver recently was awarded the B.B. McCollum Medal of Honor. This rare award, presented at the Congress of the International Academy of Gnathology in Palm Desert, California, is made to select dentists whose contributions and professional achievements are significant in the international advancement of Dentistry.



Dr. Harry L. Gelfant

It was noted that Dr. Gelfant has had a life-long commitment to continuing education. He has been a guest lecturer and clinician in most countries of Western Europe and has returned many times to congresses in South America, Mexico, Japan, Israel, the United States and across Canada.

The prestigious award is offered only every two years. Dr. Charles Eller of La Mesa, California, President of the International Academy, read the citation for the award to Dr. Gelfant. △

A new division of Oral Medicine and Radiology has been established at the University of Western Ontario, in London, Ontario.

The divisions have been combined into one which will be named Oral Medicine and Radiology. These Divisions have also worked closely together in the past and it is hoped that the amalgamation will make a firmer academic base for the teaching of these disciplines for their service to the community.

Dr. S.L. Kogon, who presently heads the Division of Oral Medicine and who has taught in the discipline of Oral Radiology for many years, will head the new combined Division. Dr. Kogon has published extensively in the areas of Oral Medicine, Radiology and Forensic Dentistry. △

HOTEL WITH A VIEW



Mr. A. Jardine Neilson, left, Executive Director of the CDA, discusses the selection of the Westin Hotel, Ottawa, as the CDA Corporate Hotel, with Mr. Patrick Kelly, General Manager of the Westin in Ottawa. Views of the heart of the Nation's Capital, and Parliament Hill, are spectacular. △

Dr. Yale Malkin of Vancouver was recently elected President of the Canadian Association of Orthodontists at an annual meeting held in Montréal. It was the first joint CAOMS-CAO Conference ever held.

Other executives elected at the meeting include: Dr. Malcolm Yasny, Toronto, President-elect; Dr. Terry Carlyle, Edmonton, First Vice President and Dr. Michel Farmer, Montréal, Second Vice President.



Dr. Yale Malkin

Dr. Malkin earned his dental degree at the University of Washington in 1962 and practiced general dentistry in Vancouver B.C. for two years. He completed orthodontic specialty training at Northwestern University in Chicago in 1966 and returned to Vancouver to enter specialty practice. In 1969 he joined the Faculty of Dentistry at the University of British Columbia in the undergraduate orthodontic program and maintains that association as a Clinical Assistant Professor.

He is a Past-President of the British Columbia Society of Orthodontists and has represented British Columbia at the Board of Directors of the CAO for several years. He is a member of the Canadian Dental Association and the American Association of Orthodontists. Dr. Jack G. Dale, President of the American Board of Orthodontics was presented with the CAO Distinguished Service Award at the meeting. This is the Association's highest honor, in recognition and appreciation of outstanding contributions and exemplary distinguished service rendered for the benefit and advancement of the orthodontic specialty.

Dr. Dale, who is an associate professor in the Faculty of Dentistry, University of Toronto, became the first Canadian to be named a Director of the American Board of Orthodontics, in 1983. △

The DAP Advisor offers information, ideas and advice to improve dentist/patient communication, raise awareness about good dental health, and help your practice become busier.

Making the Most of the Mail

This is the age of high tech communication, of fax machines and cellular phones. And yet, for all the flash and speed of these technological wonders, there are still some old-fangled, but nonetheless useful vehicles of communication that we shouldn't overlook.

Consider the mail for example. This decidedly low tech form of communication conveys bills, statements, and recall cards to your patients. The mail can be very expensive, what with postage, stationery and the cost of processing it all, but it's a necessary expense that helps you stay in business. Along with that, though, the mail offers you the unique opportunity to reach directly into your patients' homes. It is a conduit through which you can transport a wide variety of timely and compelling communication.

There are a number of very good reasons to use the mail. It can help you build rapport with your patients by demonstrating your concern about their dental health. It is an excellent chance to provide them with educational information, which, as a recent poll has shown, they look to you first to provide. And, if you are already sending out bills and statements, it can let you make the most of something you are already paying for.

Here are a few tips that will help you get greater value out of your mailings:

- *Stuff that envelope:* with a brochure, a fact sheet, your practice's newsletter — or any other piece of educational material you think your patient might find useful.
- *Refine your recall message:* If you use recall cards to remind patients that it's time to book their next appointment — and a recent survey of Canadian dentists showed that 61 per cent used a card either in conjunction with the telephone or alone — you might want to consider what it says. Does it, for example, tell the patient *why* he or she needs to see you? If you refresh their memory about the reason for a visit and frame it in terms of their needs, you might well reduce their inclination to cancel or delay an appointment.
- *Special Delivery:* Even if you don't make regular use of the mail, there are times when you may want to use it to draw your patients' attention to certain compelling issues. For example, during the anti-capitation campaign a couple of years ago many dentists sent their patients letters or articles on how capitation might negatively affect the quality of their dental care. Special mailings can inform your patients and help bring them on side. They can also be used to alert patients to interesting and pertinent dental health articles in the newspapers and magazines.
- *Soften the Bill, Please:* A 1988 Gallup poll showed that only 20 per cent of respondents found dental costs reasonable. If you send a statement to patients by mail, you can help make the costs seem more reasonable if you detail the services you've performed and tell them the benefits (immediate and/or long term) of these services. That way, they can see exactly what they are paying for and why, which might give them a better understanding that they are getting good value for their money.
- *The Thought Counts:* It never hurts to show your patients that you care about them as people. The mail is an appropriate and effective way to do that. There are a number of reasons to send your patients a card: the birth of a child, a patient's birthday, to offer condolences on a loss. You might even want to send a welcome card to a new patient, and a thank you card to the patient who referred him/her. Remember not to overdo it, or this concern could look an awful lot like self-promotion.

Callout: In a recent poll of Canadian dentists, 61 per cent said they used recall cards, either in conjunction with the telephone or alone. Because your recall card reflects your practice — and can help ensure that your dental chair is always full — it's important to select it wisely. Some questions to ask yourself:

- Does it have room for a message reminding patients of the reason for their visit?
 - Does it put your practice in the best possible light?
 - Does it foster your patients' good will?
- and most importantly,
- Has it resulted in patients phoning to book an appointment?

The DAP Advisor is a service of CDA's Dental Awareness Program, an ongoing campaign dedicated to helping all Canadians keep their teeth Good For Life.

DENTAL HEALTH MONTH 1990

Bob is Back!

And he's set for the 90s
With t-shirts, posters, balloons
and other things that'll bring a
CELEBRATION OF THE SMILE
to your office and community.
And help make Canadians more
aware of good dental health.

High quality products.

Reasonable prices.

And Bob Live too!

So bring on the decade.

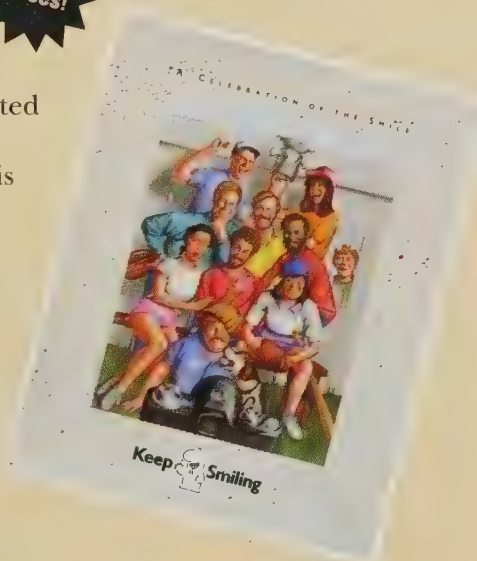
And get ready to celebrate!

Celebration Poster

More than a poster - an original work of art! Created by renowned Canadian illustrator John Fraser, this full-colour print captures the spirit and warmth of "A Celebration of the Smile". It'll look great in your office or waiting room. Approx. 18" x 24"

CDA members: \$2.00
Non-members: \$4.00

1989
Prices!



Display Card

Put it on a waiting room table and on your office desk. Display it in the reception area. Give it to patients as a jumbo reminder of the Five Point Prevention Plan. Folds to 3 1/2" by 8".

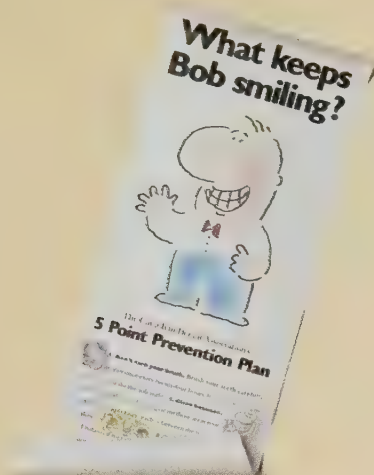
CDA members: \$.60

Non-members: \$1.20

Bob Poster

Size 12 1/4" x 36"

CDA Members: \$1.00
Non-members: \$2.00



Bob's Radio Commercial

A 30-second public service announcement for use by all local and regional media relations organizers during Dental Health Month.

CDA members: \$8.00
Non-members: \$16.00

Display Balloon

A BIG balloon - it inflates to 40 inches around - for displays and exhibits.

CDA members: \$9.75
Non-members: \$19.50

Super Stickers

Just like regular stickers, only five times bigger!
11 3/4" x 2 7/8"

CDA members: \$.50
Non-members: \$1.00

1989
Prices!

BIG Bob - Special Order

And we mean BIG. He stands 5'3" tall. Put him in your waiting room and watch the big smiles he gets. This special order item will be made available if CDA receives sufficient orders.

CDA members: \$50.00

T-Shirt

One size—Extra Large.

CDA members: \$11.95
Non-members: \$23.95



Golf Shirt

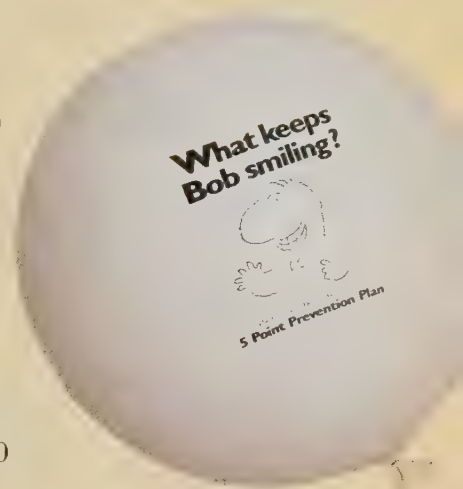
Available in S, M, L, XL.

CDA members: \$26.95
Non-members: \$53.95

Sweatshirt

Also available in S, M, L, XL

CDA members: \$29.95
Non-members: \$59.95



1989
Prices!

Keep
Smiling

Balloons

Package of 50

CDA members: \$10.50/pkg.

Non-members: \$21.00/pkg.



Buttons

Package of 25

CDA members: \$9.00

Non-members: \$18.00

Celebration Planning Kit

For community organizers. This kit is brimming with ideas, activities and tips that will help you bring a Celebration of the Smile to your community this April!

FREE!

Magnetic Bob

Such an *attractive* character! Give him to patients to stick on refrigerators and filing cabinets.

CDA members: \$.90

Non-members: \$1.80



Stickers

A perfect giveaway to young patients (and to the young at heart!) roll of 100

CDA members: \$7.00

Non-members: \$14.00

Price Reduced!

Appointment Cards

With the 5 Point Prevention Plan and space for the patient's next visit. Fits in their wallet.

Ask the CDA Order Section about personalizing these cards.

CDA Members: \$25.00 pkg. of 500

Non-members: \$50.00 pkg. of 500



Bob Live

New for Dental Health Month 1990! Bob is coming to life as a lovable full-size costumed mascot. He'll bring smiles and excitement to activities and events in your office or your community. For more information, contact your provincial dental association or the CDA.

Dental Health Month is a service of CDA's Dental Awareness Program, an ongoing campaign dedicated to helping all Canadians keep their teeth Good For Life.

Order your Dental Health Month materials today by mail or call our toll-free numbers.

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2. By phone: To place your order call:
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1-800-267-6364 (Eastern Canada)
Please have your VISA or MasterCard number and expiry date ready.

Shipping: All orders will be sent by first class mail with prepaid shipping charges as follows: under \$29.99 = \$4.00; \$30.00-\$99.99 = \$6.00; over \$100.00 = \$10.00; over \$250.00 call our toll-free numbers for applicable charges.

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Expiry date:

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Bob Poster		1.00	2.00	
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Super Stickers		0.50	1.00	
Stickers (Pkg. of 100)		7.00	14.00	
Display Card		0.60	1.20	
Celebration Poster		2.00	4.00	
Magnetic Bob		0.90	1.80	
Appointment Card (Pkg. 500)		25.00	50.00	
Balloon (Pkg. of 50)		10.50	21.00	
Display Balloon		9.75	19.50	
T-Shirt		11.95	23.95	
Sweatshirt* S M L XL		29.95	59.95	
Golf Shirt* S M L XL		26.95	53.95	
Radio Commercial		8.00	16.00	
Planning Kit		Free	Free	

Special Order (Only available if sufficient orders are received)

Display Bob		50.00	n/a	
*Please circle shirt size		Sub Total		
Please allow 4-6 weeks for delivery		Ontario residents please add 8% PST		
		Shipping		
		TOTAL		



The production of this order form has been sponsored by the Canadian Fund for Dental Education.

OSSEOINTEGRATION AND OCCLUSAL REHABILITATION

S. Hobo, E. Ichida, L.T. Garcia

*Quintessence Publishing Company, 1989
478 pages, color illustrations, \$146.00 US*

This book consists of two parts, each subdivided into 12 chapters. Part I relates to the theory and practice of so called "osseointegration", and part II relates to occlusion in implant-prosthodontics reconstruction.

Part I presents an excellent review of the vast amount of literature on the subject. Although the authors have included a brief description of several implants systems, this book deals primarily with the Branemark implant. The basic theory of implants is explained in 23 sub-chapters with extraordinary drawings, however the text is repetitive and confusing because of the many subdivisions. The chapter on treatment planning is well documented and presents some innovative methods, but most of this seems somewhat peripheral to the main theme of the book. Similar criticism can be applied to the chapter on sterilization and surgical preparation, especially with 26 pictures on how to use a surgical gown! The surgery itself is presented effectively in two chapters describing the first and second stages of surgery. There is an abundance of illustrations on the prosthetic rehabilitation of completely and partially edentulous patients, however only 12 pages are devoted to complications and maintenance of the prostheses.

The topic of occlusion is treated in the second part of the book. The authors admit in the opening chapter that very little research has been performed in this field, and that the information presented here reflects opinions rather than scientific facts. For example, the chapter on biomechanics relies heavily on the assumption that the maximum load an implant fixture can sustain is twice the normal occlusal force, although no evidence is given to support this claim. Other controversial theories, like the optimal condylar position and the use of surface electromyography to determine vertical dimension, are presented as matters of fact. Nevertheless, despite these careless assumptions, the authors admit that there is insufficient research to support any particular occlusal concept for implant prostheses.

Occlusal theories are explained in 60 pages, while the clinical and laboratory procedures are displayed over 100 pages. The use of the Myotronics equipment and an electronic pantograph are explained in detail and numerous occlusal sketches are presented.

This book is probably the best illustrated publication in the field. The basic theory of "osseointegration" is presented and the practical procedures are clearly demonstrated. However, almost half of the book is devoted to unnecessary material, controversial issue or instruments that very few dentists will or should use, particularly in light of the recent condemnation of the Myotronics-related theories (Lund JP et al; The use of electronic devices in the diagnosis and treatment of temporomandibular disorders: Canadian Dental Association; 1989;55:749-750). The remainder of the book does offer some practical value mainly for those unfamiliar with the various prosthetic techniques used with implants.

*Philippe Mojon
Assistant Professor
Division of Prosthodontics
Department of Clinical Dental Sciences
Faculty of Dentistry
The University of British Columbia*

MODERN CONCEPTS IN OPERATIVE DENTISTRY

Edited by
Preben Hørsted-Bindslev,
Ivar A Mjør

*1988, Munksgaard, Copenhagen,
339 pages, B&W and colored illustrations.*

This textbook is presented as a transition between traditional teaching in operative dentistry and what it will become in future. The text is multi-authored and includes contributions by clinicians and researchers from both sides of the Atlantic. The aim of the publication is to provide up-to-date restorative concepts for consideration by students or clinicians. The word "Modern" has been included in the title to indicate this book is different from current operative dentistry texts. An appropriate and complete reference section concludes each chapter.

The first chapter is introductory and explains the authors' intentions.

In the second chapter, dental caries is

discussed, and its various aspects, well-illustrated with microscopic sections. It is the authors' opinion, that the operator should have comprehensive and up-to-date knowledge of dental tissues, including their macroscopic anatomy, histology and ultrastructure with reaction potentials. This chapter presents these fundamentals accurately and in detail.

The third chapter deals with patient assessment and treatment planning in a practical manner with a strong emphasis on prevention, and is well-illustrated with excellent colored or black and white photographs.

The fourth chapter discusses the principles and types of cavity preparation for different materials. The clinical techniques and use of instruments are described rather superficially, and detailed step by step outlines of the different cavity preparations are not included. One comment about the excellent drawings is that the details of cavity preparations are not always accurate. The information about hand-and rotary cutting instruments is minimal and their applications and importance are only briefly mentioned.

In the fifth chapter cavity treatment and the use of liners and bases are described. General awareness and importance of biological reactions in the pulp after cavity preparation are discussed with various treatment procedures reviewed. Pulp reactions are demonstrated with clear, microscopic sections and recent studies are included. Unfortunately the text does not provide a clear guideline describing indications and instrumentation for cavity varnish, cavity liners and bases.

Chapter six deals with the amalgam restoration. The authors are able to clearly demonstrate the required clinical procedures and a conservative approach to tooth restoration.

In Chapter seven, esthetic restorations with satisfactory results as well as failures are discussed. The authors wisely mention that "the enthusiasm for the acid etch technique for esthetic corrections for teeth has lead to many interesting experiments but documented long-term clinical investigations on many of the experiments are lacking. High technical skill is needed to arrive at a satisfactory result." However the authors fail to go into sufficient detail regarding cavity instrumentation or restoration procedures, when encompassing both anterior and posterior restorative procedures utilizing tooth colored materials.

In Chapter eight, conservative cast restorations and related procedures are discussed and illustrated clearly and concisely.

Chapter nine, discusses quality assessment in operative dentistry. This is an excellent chapter including colored and black and white photographs with a logical text; which can be used as a model by practitioners, students and instructors, for evaluating the quality of restorative treatment.

Chapters 10 and 11 respectively, deal with periodontal and occlusal considerations in operative dentistry and emergency treatment. Both chapters manage these subjects in a direct and practical manner.

In summary, we would not consider this as a required textbook for teaching the principles of basic operative dentistry to undergraduate dental students. It does not outline in sufficient detail the various aspects of cavity preparation, instrumentation and tooth restoration. An important subject in operative dentistry is the control of moisture in the operating field; and the effective and efficient use of rubber-dam isolation is not described. This text may be most useful as reference for those with a sound background in operative dentistry; and who are interested in current concepts that could alter, augment or replace traditional procedures, where indicated.

This book was reviewed by:
F. Hadavi, DMD, MS, and
E.R. Ambrose, DDS, FRCD(C),
Division of Operative Dentistry,
College of Dentistry,
University of Saskatchewan

DIAGNOSIS AND TREATMENT OF MUSCLE PAIN

By Hans Kraus

1988 Quintessence Publishing Co., Inc.
116 pages, colour photographs,
\$32.00 U.S.

This textbook contains eleven chapters and is edited by Hans Kraus who is at present in private practice in New York but was formerly an Associate Professor of Physical Medicine at New York University, New York, New York. He is author of four of the chapters including "Muscle Spasm", "Muscle Tension", "Muscle Deficiency", and "Trigger Point". The other seven chapters are by various authors including a dentist, Professor

Harold Gelb, who is a clinical professor of Prosthodontics at New Jersey University College of Medicine and Dentistry.

As an overview in the area of muscular skeletal pain, for both etiology and treatment the book is easy to read and will be of interest to those dentists that have not been exposed to such modalities as trigger point identification and treatment or thermography. The latter technique as described by Dr. Fischer is also illustrated with some excellent colour illustrations in the diagnosis and treatment of muscle pain.

The chapter on "Craniocervical Mandibular Disorders" by Dr. Harold Gelb is the one which should interest dentists mainly. However, he is at variance with many others when he includes routine causes to include nutritional, metabolic and endocrine "inadequacies". The suggestion of performing screening of laboratory on such patients is again questionable. The idea that a restricted airway is the reason for Myofascial Pain Dysfunction Syndrome is again out of line with present concepts. The inclusion of "applied kinesiology testing" and "phonetics" in the diagnosis of the MPD Syndrome is again questionable. The section on the actual treatment of the patient, however, is commendable and his final summation is both brief and informative.

In conclusion this textbook is worth reading as a general review of muscle pain and it is unfortunate that the only dental input is found wanting.

David Donaldson, BDS, FDS, RCS, MDS
Professor and Head
Department of Oral Medical &
Surgical Sciences
Faculty of Dentistry
The University of British Columbia.

POCKET ATLAS OF HEAD AND NECK MRI ANATOMY

Robert B. Lufkin and
William N. Hanafee

Raven Press, New York, 1989
U.S. \$13.95

This book lives up to its title in two ways. Firstly it is strictly an atlas — the only prose being confined to the Preface — and secondly it is small enough to slip into a quite small pocket. I fear, indeed, some copies may end up in the laundry.

Seventy pages are illustrated with labelled MR images of the head and neck. The planes of cut are in sagittal, coronal

or transverse directions as appropriate and in each case an orthogonal cut identifies the plane. The images are of spin echo sequences with mildly T₁ weighting. These sequences have been chosen to maximize fat/muscle contrast and have succeeded in demonstrating anatomical features extremely well. The anatomical structures are within the grasp of clinically orientated individuals. Unnecessary complication has been avoided.

This will be a useful book for those involved in interpreting MR images of the head and neck and may additionally help those studying anatomy. The lack of complexity, in itself a very attractive feature, is at the same time limiting in specialized areas. For instance, those hoping to extend their knowledge of MR appearances of the temporomandibular joint will be disappointed. The joint is illustrated, but the disc is not mentioned.

The book ends with a list of ten references of papers, all of which have included one or both authors in their production. Both authors are well respected, and they have produced an atlas of high quality images.

Colin Price, BDS, MDS, FRCD(C),
Chairman
Division of Oral Radiology
Faculty of Dentistry
University of British Columbia.

FIRST AID TIP



EMBEDDED OBJECT

DO NOT ATTEMPT TO PULL OUT OBJECTS EMBEDDED IN A WOUND. Pulling at nails, splinters, or a piece of glass in a wound will cause more damage and increase bleeding • Cover lightly with dressings without pressure on the object • Secure the padding with bandages to apply pressure around the wound and away from the object • Get medical aid.



St. John Ambulance



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Writer 'misrepresents my data'

I am writing to you regarding Dr. Lund's "Its my Opinion" column (September 1989 Vol. 55 No. 9). Once again, Dr. Lund has taken the opportunity to launch out against the use of bioelectronic technology in the diagnosis and treatment of craniomandibular disorders. More personally, he again cites my study of 26 asymptomatic subjects¹ and misinterprets my data to mean that bioelectronic testing has no clinical value.

In an issue of last year's *Journal of Prosthetic Dentistry*,² Dr. Lund and his associates performed partial bioelectronic testing protocols on a small group of 15 subjects and concluded that the test data obtained showed many to have signs of neuromuscular dysfunction. Since he found no correlation between symptomatology and extent of malocclusion or muscle dysfunction, he concluded that bioelectronic testing had no clinical value in the management of patients with facial pain. Further, he cited my study on asymptomatic subjects which again demonstrated significant percentages of individuals with malocclusions and muscular dysfunction to reinforce his point.

What is lacking from Dr. Lund's argument is an understanding of disease. Craniomandibular disorders are a complex entity involving both physical predispositions and demonstrable musculoskeletal dysfunction, as well as a strong personal-psychosocial component. Dr. Lund dismisses bioelectronic testing as invalid because they cannot be used as a substitute for the clinician's task of assessing the patient's subjective complaints and correlating them with physical findings.

His analogy about symptomatology and physical findings has no precedent in medicine or dentistry. Take for example the patient with angina. If we performed cardiac catheterizations on all patients with angina we would find significant numbers with high grade coronary artery occlusions or three vessel disease. However, the mere presence of three vessel disease is not in and of itself an indication for coronary bypass surgery. Instead, it must be used as evidence in conjunction with an increasingly unstable pattern of angina for surgery to be recommended.

Likewise, in the setting of craniomandibular disorders, the mere presence of

musculoskeletal dysfunction does not mean that the patient needs emergent treatment. Nor does it mean the test is not really measuring dysfunction. However, in the presence of severe symptoms that compromise the patient's lifestyle, and of necessity require some treatment, bioelectronics can provide the framework around which such treatment can be organized.

Electronic testing provides a yardstick towards an ideal physiologic state. A neuromuscularly based occlusion can be created and will maintain itself.³ Patients treated by creating neuromuscular occlusal positions through orthotic appliances or splints for the most part experience symptomatic relief.

I would hope that from his own clinical experience, Dr. Lund would be able to make the clinical judgement as to whether the patient required treatment of their illness. We must remember that we must treat the patient, and bioelectronic testing provides objective evidence of dysfunction. In the absence of such information, does Dr. Lund advocate that we base diagnostic and therapeutic decisions solely on subjective complaints?

"An age is called 'dark' not because the light fails to shine, but because people refuse to see it."

— James Mitchener, *Space*

We have lived through the time when all we had available to make diagnoses and treat patients were our eyes and our hands. Bioelectronic instruments have become a part of our daily practice. We can now measure mandibular function and muscle activity in the office, perform sonography of the TMJ, custom grind reconstructions by CAD-CAM computer system, and perform MRI imaging of the jaw. These bioelectronic tools do not supplant clinical judgement, but can be aids to the practicing clinician. Research should be focused on refining and improving the use of this technology. Δ

Barry C. Cooper, DDS, FICD

Associate Professor of Clinical Otolaryngology
New York Medical College
New York, New York, USA

Dr. Lund and his colleagues respond

Although Dr. Cooper implies that the Opinion published in the September issue of this journal was written by only one author, in fact, it represents the consensus of 11 authors from 6 Canadian

universities. This is not the first time that Dr. Cooper has written in response to criticisms of the use of jaw tracking in the diagnosis and treatment of dental patients. His previous letter and the reply to it were published in the *Journal of Prosthetic Dentistry*.¹ For the second time, Dr. Cooper has misinterpreted the work of Feine et al.² They did not conclude that many of their asymptomatic subjects had signs of neuromuscular dysfunction. Their conclusion was that when the criteria commonly used with the mandibular kinesiograph were applied to the mandibular movements of asymptomatic subjects, many were classified as dysfunctional. Two interpretations can be drawn from these results:

- 1) That people without symptoms are really dysfunctional and unknowingly suffer from craniomandibular disorders, or
- 2) That the criteria used to classify movements as abnormal are invalid and non-specific.

Because the results in their study revealed that these criteria could not distinguish between groups of asymptomatic and symptomatic subjects, Feine et al. chose the second interpretation; that is, that the criteria are invalid. Dr. Cooper, on the other hand, insists that asymptomatic patients like these are truly dysfunctional. This implies that he believes the criteria to be unassailable.

However, how was it first decided which patterns were normal and which were abnormal? When and with what methods were these criteria developed? To our knowledge, there are no published reports of controlled clinical trials to validate these criteria, even though it is essential to show that criteria are valid before using them to diagnose illness. For example, we know that the diagnosis of hepatitis B depends on the detection of specific antibodies, and that these are found in the blood of less than 1 per cent of the general North American population. Suppose that you developed another type of diagnostic test and with it, like Dr. Cooper's study of asymptomatic subjects,³ 81 per cent of the general population tested positive. What would be its value? Unless you are able to show evidence from other sources that most of these people have the disease, or unless you observe them over a long period and show that a large percentage eventually develop it, then your diagnostic test is worthless.

Dr. Cooper argues that "craniomandibular disorders are a complex entity,"

and implies that patients may be ill without symptoms. However, craniomandibular disorders have not been shown to be part of a category of "hidden disorders."⁴ Furthermore, caries, cancer, periodontal and cardiovascular disease are not really hidden disorders; they do produce characteristic pathophysiological changes. On the other hand, myofascial pain, like "muscle tension" headache or chronic low back pain without neurological symptoms, produces no measurable tissue damage, nor evidence of illness in the absence of patient reports of pain.

For all of these reasons, we do not believe that the type of bioelectronic testing advocated by Dr. Cooper provides "objective evidence of dysfunction" because the diagnostic criteria appear to have been arbitrarily determined. Therefore, in response to Dr. Cooper's question "does Dr. Lund advocate that we base diagnostic and therapeutic decisions solely on subjective complaints," the answer of our group is generally yes. We believe that the ADA guidelines for diagnosis and treatment of these disorders⁵ are still valid, and should be followed until solid evidence in favour of another approach is gathered. We are not against the application of technology, only its misapplication. As we wrote before, proper procedures for testing exist, and they should be applied.⁶

Like others before him, Dr. Cooper makes exaggerated claims for many instruments.⁷ He believes that the arrival of bioelectronic instruments brings light into the dental office. However, if we stare at bright lights for too long, they make us blind: we suggest that dentists shade their eyes so that they can see whether it is science or science fiction that gives the light its glow. Δ

J.P. Lund, BDS, PhD

J.S. Feine, DDS, MSc

G.J. Lavigne, DMD, MSc, Cert. Oral Med.

(For the Authors of the Opinion)

Université de Montréal

Faculté de médecine dentaire

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'Basic information' or 'hucksterism'?

I am responding to the request in the October Journal to hear CDA members' views on advertising. (JCDA Vol. 55, No. 10, p. 762).

First of all the term "advertising" sparks confused meanings in me, rather as I imagine many Canadians respond to the label "distinct society" within the current Meech Lake debate. For me advertising is a spectrum. On the left side of the spectrum is basic information, and on the right is soliciting and false claims — perhaps best summarized as hucksterism. An example of basic information is the name and address of the dentist in the yellow pages. As for examples of hucksterism, I would suggest a dentist claiming that he or she is the "best in town" or one who offers the chance of free tickets to Hawaii if patients sign up for treatment before a particular date.

The area of basic information as an item of communication between a profession and the public is much larger than when I became a dentist. Today, for example, Nova Scotia lawyers "advertise" in local newspapers naming the areas of law they offer, biographical details, and sometimes they include photographic portraits. It is commonplace for the largest (and most respected) law firms in Halifax to advertise with all their partners' names in the Saturday papers.

I am not implying that we follow their behaviour slavishly. On the other hand, since I believe our responsibility is first and foremost to serve the public, it seems not unreasonable for dentists to inform the public of their availability to serve by publishing their names, addresses, office hours and types of dentistry provided in the yellow pages or even the local newspaper. Then the public, with the possession of fundamental facts, can make an informed choice of dentist. I imagine that in an urban area it might be helpful to

include any language skill a dentist has beyond that of the dominant language of the community.

At the right hand of the advertising spectrum, hucksterism is ethically offensive. The question, of course, is what we should do about it. Perhaps the first step is to consider what might be the consequences of such behaviour. I have a theory that hucksterism doesn't deliver (for dentistry that is) what the perpetrators hope to achieve. For the loony few (or many) who might see it as a solution to their poor patient flow, I predict disappointment.

My reasoning is that successful dentistry, unlike short-term commercial transactions, is rather like successful marriage. Both are highly dependant on the quiet cultivation of trust and mutual respect through time. If this is the case, then surely hucksterism will destroy trust and, therefore, bring to huckstering dentists the most fleeting gains before failure stares them in the face.

I'd suggest that the Association should try and convince dentists across this land that huckster advertising is counter-productive. But if huckster advertising doesn't work, it does not mean we can ignore it. On the contrary, if our Association is perceived by the public to condone it (for example by not taking a stand against it) then I would imagine public trust in the profession as a whole would drop by a difficult to estimate number of percentage points. In such a scenario the actions of even a loony few would, in fact, touch us all by making our task of building trust in patients that much more difficult.

Assuming the theory of advertising I have rambled on about is correct, we will still have to wrestle with the grey area between the left and right sides of the advertising spectrum. I believe we will be able to see the breakpoint between acceptable and unacceptable advertising much more clearly once we have defined exactly what are the left and right sides of the spectrum, namely what is basic information and what is hucksterism. Δ

Alastair MacLeod, DDS
Sydney, Nova Scotia

Re: 'Comments by Dr. McComb'

Dr. Stevenson-Moore's letter vis-a-vis the comments by Dr. D. McComb are difficult to comprehend. He advocates not

attempting restoration of carious lesions until remineralization medicines, which have not been demonstrated to be clinically effective in double-blind randomized clinical trials, are used. I'm not party to any of the means by which cavitating carious lesions re-constitute themselves without the placement of some form of restoration. His further comments about glass-ionomer restorations being moisture sensitive fly in the face of the fact that most of our patients are xerostomic from their radiation treatment. Working in their mouths we are faced by a constant and uniform dry-field! He also states that the wear characteristics of glass ionomers negate their clinical usefulness. However, there is little wear in areas where they are used (Class V radiation-type carious lesions). Immediately after Dr. McComb's letter to the editor pointing out, quite correctly that we should be using glass ionomers we contacted her and are now routinely using these restorations with great cosmetic and functional results. We are quite happy that a well-written and cogent argument presented by Dr. McComb in her letter to the Canadian Dental Association Journal has led to a change for the better in the care delivered to our patient population. Δ

R.E. Wood, DDS, MSc

Consultant, Department of Dentistry,
St. Michael's and the Princess Margaret Hospitals,
Toronto, Ont.

W.G. Maxymiw, DDS

Head, Department of Dentistry,
Princess Margaret Hospital
Toronto, Ont.

'Surprised' by several comments

Re: the recent letter from Dr. J. Epstein and Dr. Stevenson-Moore about the article The Role of Dentistry in Head and Neck Radiation Therapy: Volume 55, pp. 193-198, 1989. We are surprised by several of his comments which are not based on fact.

Dr. Epstein states that patients with Hodgkin's disease who have had upper mantle radiation are subject to pronounced xerostomia. Upper mantle radiotherapy, which was first used in North America at our institution,¹ is defined as extending from the inferior border of the

mandible to a line drawn across the nipples and thus anatomically includes only the submandibular salivary glands and the inferior-most parts of the parotid glands.² Few if any minor salivary glands are encompassed in the field. The usual tumor dose and dose per fraction is 36 Gy at 1.8 Gy per day.² For xerostomia the threshold dose for the parotids has been reported to be 40 Gy at 100 per cent exposure.³ Therefore the degree of xerostomia in this group of patients is minimal and at times even reversible.

Dr. Epstein's comment that only tumor dose is addressed in our paper and not the number of fractions is spurious since it is the combination of total dose, dose per radiation fraction (as addressed in the mucositis and xerostomia sections of our article) and pattern of deposition that is important in tumor control.²

Despite Dr. Epstein's assurances that the article detailing the synergistic effect of pilocarpine and Sialor⁴ shows statistically significant increase in saliva in these patients, careful examination of that study reveals that only two of the nine patients examined had irradiation of all of their salivary glands. Only one patient was above the threshold for salivary compromise of 40 Gy. Furthermore the nine patients studied were not a uniform group with irradiated volumes and doses differing by a factor of 2! Such a study must be classified as anecdotal at best. In the examination of the action of pilocarpine alone, studies have indeed been done where patients have been randomized in a sequential crossover technique with a total population of only 12 patients.⁵ However, again the methodology does not address the technique to determine the radiation dose to the parotid glands (such as the use of check films and isodose curves). Pilocarpine can only work on glands which have functional acini. Irradiated glands (dose over 40 Gy) cannot be stimulated to produce saliva from radiation-fibrosed acini.

Dr. Epstein does detail many anti-candidal medications and regimes which was not the purpose of our dissertation. His concern over the sucrose base of conventional anti-fungal agents may be allayed by the fact that they may be prepared without sugar (as ours are). We are fully aware of the many different modes of delivery of Mycostatin but did not want to bore readers with a lengthy review when such information is found in many undergraduate texts. He correctly points out that Chlorhexidine is fungistatic *in*

vitro. However, its *in-vivo* anti-fungal effectiveness is anecdotal.⁶ Randomized studies have shown CHX has no significant effect on the occurrence of Candida.⁷ Clotrimazole is indeed more effective⁸ but combining CHX with an antifungal is not a good idea due to the formation of an insoluble salt between the two.⁹ Chlorhexidine has however been shown to be effective in selected groups of severely immunocompromised patients.^{10,11} We did not want to leave the readers with the impression that we agree with all of his comments. Δ

W.G. Maxymiw, DDS

R.E. Wood, DDS, MSc.

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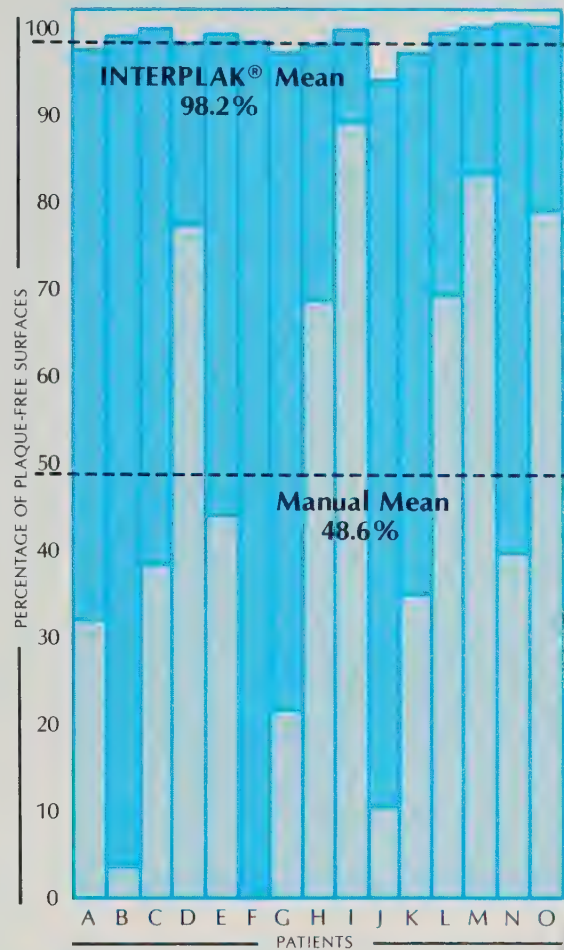
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RESULTS:

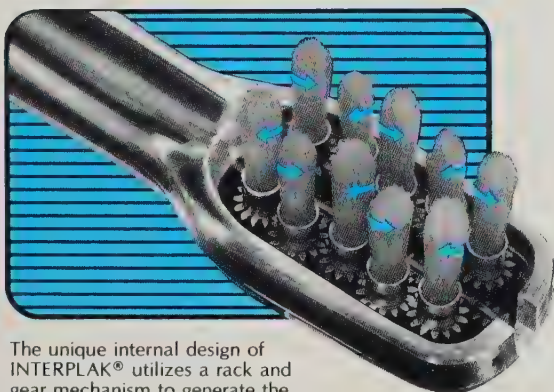
The plaque scores for INTERPLAK® showed a range of 93.5% to 100% plaque-free surfaces, with a mean of 98.2%. The scores for the manual brush showed a range of 0.0% to 88.7% of plaque-free surfaces, with a mean of 48.6%.

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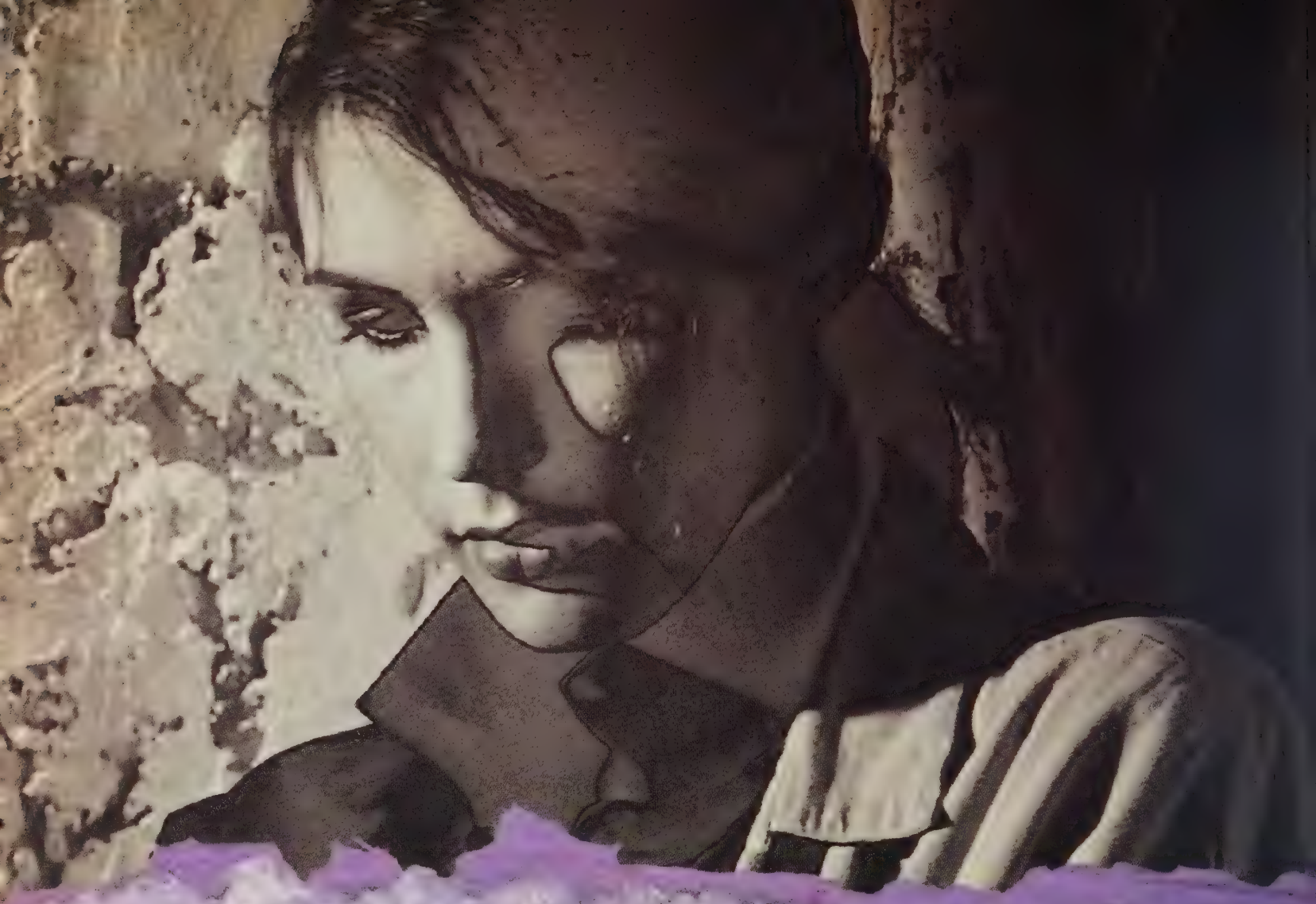
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Putting Hubby Through — the Compensatory Support Conundrum

by Gene C. Colman*

P.H.T." — "Putting Hubby Through". That was the "degree" granted by a certain optometry school to my client upon her husband's graduation. Of course, we submitted this "degree" to the judge as proof that our client had indeed contributed to her husband's career potential. We claimed "compensatory support" — support to be paid over and above straight "need". In a manner of speaking, we were partly successful.

Do the courts always recognize such claims? Where a dentist has been supported during the early years of education and practice by his spouse, does that entitle the spouse to get more financial support than she (usually it is the wife who assists the husband although there is no reason in theory why it cannot be the other way round) might otherwise be entitled to?

In the *Caratun* decision (currently under appeal) the wife assisted the husband in obtaining his license to practice dentistry in Ontario. She was awarded \$30,000 for this contribution (although it was done under the guise of a property award as opposed to a support order).

Ontario's *Family Law Act* directs the judge, when assessing the amount and duration of spousal support, to consider "a contribution by the dependant to the realization of the respondent's career potential". Canada's *Divorce Act, 1985*, does not contain such a specific provision although the court is directed to consider "the functions performed by the spouse during cohabitation". The federal statute would apply across Canada in all divorce cases. The relevant provincial statute would apply in cases where a divorce judgement is not claimed.

Judges across Canada have disagreed as to whether "compensatory support" is even available. Justice Walsh of Ontario's Supreme Court tries many family cases. He flatly said (*Forster*) that the relief is not available under the previous *Divorce Act*. Other judges have awarded such support (*Kierans, Keast, Magee*). For example, in *Magee*, Judge Goodearle



Gene C. Colman, BA, LLB

* **Gene C. Colman, BA, LLB**, practises family law with Teplitsky, Colson (Toronto and Brampton). He has practised family law since 1979. Mr. Colman is a founding editor of the *Canadian Journal of Family Law* and is currently a member of that journal's editorial board. His recent publications include:

Joint Custody: Recent Developments, (1989), *Canadian Family Law Quarterly*, Vol. 4, issue 1.

Joint Custody: An Update, (1989), *Reports of Family Law*, Vol. 19, page 246.

Mr. Colman was also author of the article entitled: "Dispute Resolution — Let's Get On With It", prepared for publication in the November, 1989, edition of *Canadian Lawyer* magazine.

He is a member of the family law section of the Canadian Bar Association and the American Bar Association.

of the Unified Family Court in Hamilton, Ontario, ordered a lump sum compensatory order where the husband who had been a hospital orderly, was supported

by his wife (a registered nurse) through undergraduate, graduate and then medical school studies. Only just prior to the separation did the husband start to earn a substantial income. Yet, the doctrine has been severely criticized by other judges. The British Columbia Court of Appeal (*Johnson*) viewed compensatory support as an indirect means of dividing capital and therefore not proper as provincial property legislation property fulfills this function. This latter case also dealt with the situation where the wife supported the husband while he obtained his medical training.

Two more recent cases have dealt with the conundrum. Justice Walsh in *Ackermann*, refused to award compensatory support, saying that it is only claimable where there has been "a most substantial contribution towards the career of the other and the marriage breaks down before there can be any substantial return to the other of either increased lifestyle or distribution of property." Judge Beckett (also of the Unified Family Court) dealt with a marriage of but six years' duration (*Baker*). The wife sought compensatory support under the *Divorce Act, 1985*, on account of her being the major breadwinner for the first three years of the marriage during which time the husband earned a degree in metallurgical engineering. The judge decided that the wife had in no way been disadvantaged by the marriage, that her standard of living would not be significantly lower than that enjoyed during the marriage, and that the husband would have obtained his degree whether he had married her or not. As in *Johnson*, Judge Beckett doubted jurisdiction existed to make what essentially amounted to a division of capital or property "under the guise of a lump sum support order". Only if financial "need" existed could contribution to the career enhancement of the other spouse be considered as but one factor in the quantum of support. If there was no "need" then even with such contribution, Judge Beckett would not order compensatory support.

We can readily appreciate from the above that the case law is by no means settled. Precedents exist on both sides of the issue. *Magee* and *Baker* are decisions from the same court (but different judges) with different results and different philosophies expressed. The implication for the dentist who is facing marital separation is that each situation must be carefully analysed in light of the attitude taken by the courts in the dentist's locale. As with the problem of whether a professional license is property or not, we will likely have to wait for the Supreme Court of Canada to deal with the issue before we know "for sure" what the law will be. Δ

Mr. Colman has been happily married to Dr. Lisa Goldstein, BSW, MD, CCFP for 19 years. They have five children (ages seven months to nine years).

Regarding his articles, he cautions the reader that each situation is different. This article is presented for general interest only and should not be relied upon in order to draw conclusions about any individual's legal problems. If you have a legal problem, or if you wish to take steps to avoid the application of the Family Law Act to you, then, Mr. Colman advises, a lawyer should be consulted.

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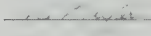
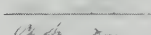
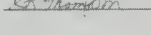
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The Dentist as a Member of the Palliative Care Team

Gerard L. Lapeer, DDS
St. Mary's of the Lake Hospital
Kingston, Ontario

ABSTRACT

Palliative care is the knowledgeable and compassionate care of the dying patient. Although based on an holistic multidisciplinary philosophy, it does not usually include dentistry in its team approach. Many terminally ill patients have oral problems resulting from anti-cancer therapy and/or poor oral care during lengthy illnesses that require therapeutic intervention. By incorporating dentistry into the palliative care team, the dental needs of the dying patient will be managed more effectively.

SOMMAIRE

Les soins palliatifs sont des soins qu'on donne aux mourants pour soulager leurs douleurs. Comme ils se fondent sur des principes multidisciplinaires holistiques, ils exigent toute une équipe, mais ordinairement celle-ci ne compte pas de dentiste. Pourtant, nombreux sont les malades en phase terminale qui ont des problèmes buccaux à la suite d'une chimiothérapie ou à cause d'une mauvaise hygiène bucco-dentaire durant leur longue maladie. Ils auraient donc besoin de soins thérapeutiques. En alliant le dentiste à l'équipe des soins palliatifs, on réussira à mieux gérer les besoins dentaires des mourants.

Palliative care, or the knowledgeable and compassionate care of dying patients, has become an important issue in health care. Although an holistic multidisciplinary philosophy is essential for its effectiveness, palliative care does not usually include dentistry in its team approach. The question posed in this article is whether or not the dentist should be a member of the palliative care team.

To answer this question, three distinct topics will have to be addressed: first, a formal definition of palliative care and a discussion of the guidelines for the care of the dying patient; second, a review of statistical surveys of palliative care in Canada; and third, a discussion of the dental needs of the palliative care patient.

Palliative care — definition and guidelines

In 1987, the Board of Advisers of the Palliative Care Foundation in Canada proposed a formal definition for palliative care.¹

Palliative care is the active, compassionate care of the terminally ill at a time when their disease is no longer responsive to traditional treatment for cure or prolongation of life and when the control of symptoms — physical, emotional, and spiritual — is paramount.

The terminally ill are those whose disease is irreversible, is progressing toward death, and is at an advanced stage.

Palliative care is concerned with the alleviation of suffering in the broadest sense, and has the following attributes:

- *it is most effective when carried out by a well-coordinated, multi-disciplinary team*
- *it provides a complete continuum of care for patient and family, both before and after death*
- *it is carried out in the most appropriate setting, whether home, hospital, or institution*

The ultimate goal of palliative care is the comfort and dignity of the patient. When practised as an integral part of the overall health care system, it may also contribute

to the effective use of scarce resources by providing better care at lower cost than would be the case in an acute care facility.

This definition highlights the salient features of palliative care.

In 1975, the International Work Group in Death, Dying, and Bereavement (IWG) developed general guidelines² for the care of dying patients. These guidelines are considered to be an excellent foundation for the development of a palliative care program² and will give the reader, by expanding on the previous definition, further insight into palliative care.

These guidelines are outlined below and are divided into four main areas:

(1) Patient-oriented standards;

The terminally ill person's own framework of preferences, lifestyle and life philosophy must be taken into account.

Extension of life will continue to be one of the goals of care during a life-threatening illness (which is, however, not the same as maintaining that life-extension is the only goal).

Remission of symptoms will continue to be a goal of treatment. In other words, just because a person is "dying" or does not have long to live, this does not mean that efforts to maintain or restore functional capacity or alleviate distress should be reduced.

Pain control is important enough to be set as a specific standard. Pain that is not controlled does much to demoralize people and disturb their interpersonal relationships, in addition to the direct anguish of the experience itself.

The patient should have a sense of feeling safe, protected, that he or she can "count on" the care-givers.

The patient should not feel that he or she is a heavy burden on the staff or the family.

A determined effort should be made to accede to the wishes of the patient (and family) with respect to the place of death.

Full opportunity should be given to discuss dying and death with staff and others.

Opportunity to experience final moments in a way that is meaningful to the patient.

(2) Family-oriented standards;

The family should have opportunities for privacy with the person, both while living and newly dead.

The family should have opportunities to develop the sense that the hospital or other care facility has a community or support network as contrasted with the sense that it is a technical, treatment-oriented facility only.

The family should have opportunities to talk about dying, death and related emotional needs to staff.

(3) Staff-oriented standards;

A sense of mutual support should exist among the staff, encompassing both the more technical and socio-emotional dimensions of working with the terminally ill.

The care-givers should be given adequate time to form and maintain personal relationships with the patient.

(4) Process-oriented standards;

A final care plan should be developed for all terminally ill persons, and reviewed and modified as necessary. This plan includes not only what should and should not be done during the very last stages of life, but also the immediate after-death situation. The final care plan should be one of the expressions of the patient's personal framework, as respected and acknowledged by staff and family.

An open communication network should exist among staff at all points in the terminal process, from preadmission to after-care or postvention.

Palliative care in Canada

A survey³ of palliative care programs in Canada was carried out in 1981, and again in 1986. In 1981, there were 116 programs with 5,000 admissions and 3,000 deaths. In 1986, there were 359 programs with 8,200 admissions and 12,000 deaths. The services offered in the palliative care programs in the 1986 survey as a percentage of total programs included: symptom control, 74 per cent; patient counselling, 62 per cent; family counselling, 80 per cent; home support, 52 per cent; physiotherapy, 47 per cent;

These same patients were then asked to identify dental problems which concerned them. They reported:

bad mouth	45%
dry mouth	41%
food retention around teeth	36%
general mouth discomfort	34%
bad breath	34%
poor chewing	34%
problems talking due to oral problems	28%
poor oral appearance	28%
burning tongue and/or lips	28%
rough or sharp edges on teeth	14%
bleeding gums	9%
teeth sensitive to temperature and sweets	9%
cavities	5%

Those patients in the group with removable dentures reported the following problems:

loose partial or complete denture	57%
uncomfortable dentures	50%
food under dentures	50%
denture pressure sores	43%
rough areas on dentures	21%

occupational therapy, 33 per cent; recreation therapy, 22 per cent; music therapy, 18 per cent; speech therapy, 1 per cent; and day hospital, .2 per cent. Again in the 1986 survey, staffing as a percentage of total programs included: physician, 34 per cent; nurse, 59 per cent; social worker, 31 per cent; occupational therapist, 14 per cent; physiotherapist, 18 per cent; pastoral care, 28 per cent; dietitian, 5 per cent, counselling staff, 5 per cent; and volunteers, 48 per cent. Dentistry was absent from both the services offered and staffing.

Dental needs of the palliative care patient

Approximately 70 per cent of the deaths in palliative care programs are due to cancer.⁴ Many of the patients have previously received anticancer therapy, such as chemotherapy and/or head or neck radiation. These two therapeutic modalities usually precipitate oral side effects which can be very distressing for the patient and which may lead to further serious local or systemic problems if left untreated. The oral problems associated with cancer chemotherapy include;⁵ stomatitis, periodontal disease, infections, xerostomia and dental caries. The oral problems associated with head and neck radiation include;^{6,7} mucositis, xerostomia, infections, periodontal disease, osteoradionecrosis, dental caries, edema and trismus.

Gordon, Berkey, and Call⁸ examined 32 terminally ill patients. Their oral findings included poor denture retention (62 per cent); red, cracking or inflamed corners of the mouth (37 per cent); dry mouth (34 per cent); mucosal lesions (25 per cent); and glossitis (16 per cent).

Discussion

The substantial increase in the number of palliative programs in Canada since 1981 is a reflection of global concern.³ Health care professionals, worldwide, have now recognized the special needs of dying patients and their families, and the needs of the care-givers who treat dying patients.

Palliative care of the patient with incurable and advanced terminal disease is an arduous task. It encompasses a number of treatment objectives which include:² elimination of the patient's distress, comforting the patient during times of sorrow, maintaining the patient's functional capacity, controlling the patient's pain, consoling the patient's family, allowing the patient and family privacy, and enabling the care-givers to work in an atmosphere of mutual support. The amalgamation of these objectives requires "a moving pattern of many interlocking skills and behaviours, of generalizable science and irreproducible insight, of clinical acts and charismatic words, of professional leadership and emphatic personal presence."⁹ But at present, there

is a tremendous diversity in the services and staffing of palliative care programs across Canada.³ This haphazard or random multidisciplinary approach indicates a lack of definition of what constitutes operational palliative care. This factor, in conjunction with the rapid increase in the number of palliative care programs raises some very serious questions:³ one, "Are we evolving a haphazard system of care with little or no attention to quality?"; two, "What is quality palliative care?"; and three, "How do we know we are delivering quality palliative care?" Therefore, palliative care has reached a plateau where standards must be developed to ensure consistent quality care of the dying patient.

The 1986 survey of palliative care programs in Canada³ made no mention of dentistry in either services offered or staffing. In general, dentistry is not considered an essential element of palliative care. But as reported above,⁴ a large number of patients admitted to palliative care programs are dying with cancer. Since many of these patients could have received chemotherapy and/or head and neck radiation, they could have oral problems precipitated by these anti-cancer treatments. Also, patients in palliative care may just have routine dental problems which concern them.⁸ Therefore, **should the dentist be consulted only when a dental problem becomes a concern of the patient, family and/or palliative care staff, or should the dentist be a member of the palliative care team?**

The author believes that the development of an holistic multidisciplinary approach which provides quality palliative care should include dentistry as a member of the palliative care team. This would insure a consistency of care that could not be achieved on a consultant basis. First, a patient's dental status can be evaluated and a treatment protocol or maintenance program established at the time of admittance to the palliative care program. This is important because a great number of patients prior to their admission, have oral problems precipitated by anti-cancer therapy or have had lengthy illnesses and hospitalizations with inadequate oral hygiene resulting in poor oral health. Furthermore, this initial examination enables the dentist, and therefore, the palliative care team, to be aware of any significant dental problems which could go undiagnosed. Second, the daily routine oral care of the palliative care patient can receive constant supervision allowing any alterations in this care to occur without a break in continuity.

Third, **the dentist, being a member of the palliative care team, can assess the dental needs of the patient, taking into account the goals and philosophy of the palliative program.** By communicating with the patient, the patient's family, and staff members of the palliative care team, the dentist can formulate a realistic treatment strategy that incorporates the needs, both real and perceived, of the patient, and in some cases, the patient's family. Fourth, staff members of the palliative care team, as well as other hospital staff and volunteers, can receive inservice training regarding:

"(1) recognition and referral of dental problems and concerns; (2) counseling of patients and families regarding dental issues; and (3) developing contacts and working relationships with participating dental practitioners."¹⁰ And fifth, dental care in the palliative care program can be investigated and researched, so that standards for the care of the dying patient can be constantly improved.

But **dental expertise is not enough to make an effective member of the palliative care team. The dentist must also have the knowledge, openness and compassion to work with dying patients and their families.** The dentist must have a thorough understanding of the goals and philosophy of palliative care, be aware of the medical and psychological issues regarding dying patients, and be knowledgeable about the ethical, legal and economic realities of dying. Therefore, to train dentists for the challenge of treating this unique group of special patients, the topics of palliative care, death and dying, and dental treatment of the dying patient, will have to be incorporated into the curriculum of dental schools and in continuing dental education courses. This training will enable dentists to be vital participants in a steadily growing area of specialty health care. More importantly, another need of the dying patient which has been neglected in the past, can be effectively managed in the palliative care program. As stated by Judith Kohn:¹¹

"... the dying don't press their needs. Their families don't cry out much either. And, for a variety of reasons ranging from ignorance to insensitivity, most health care providers are doing little or nothing to improve the lot of terminally ill patients in hospitals and elsewhere. Indeed, it is becoming increasingly clear that in most parts of the United States and Canada, these patients don't

receive appropriate services. This inadequate care of the dying represents a significant gap in our health care system." △

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Reprint requests to:
Dr. Gerard L. Lapeer
St. Mary's of the Lake Hospital
P.O. Box 3600
Kingston, Ontario
Canada
K7L 5A2

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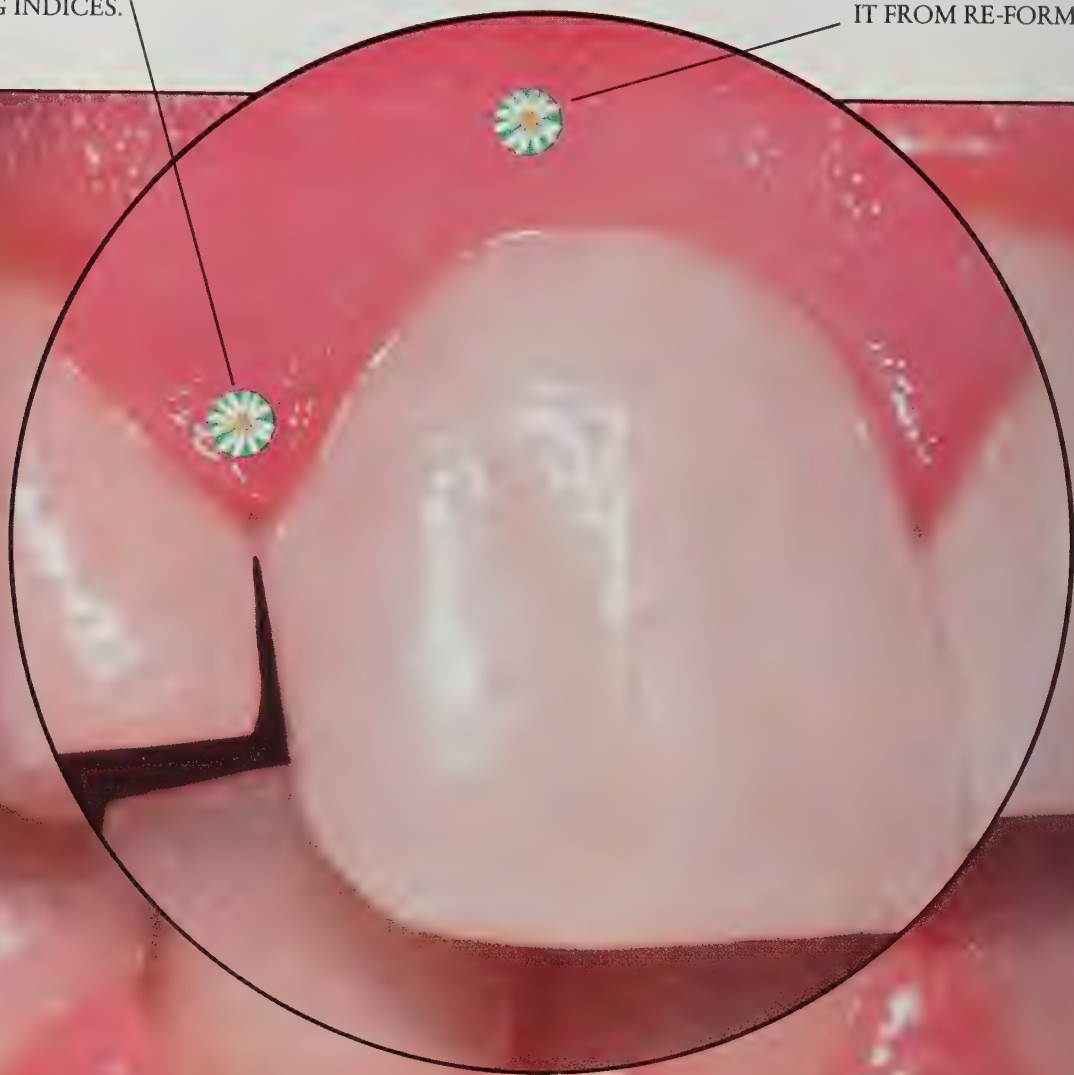


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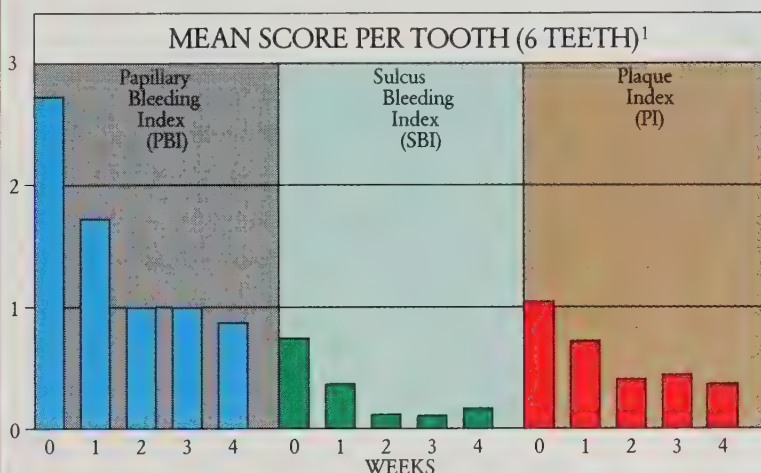
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The Behaviour of the Geriatric Patient

Frederic Vosburg, BA, DDS, FICD
Faculty Lecturer, Department of Community Dentistry
McGill University, Dental Faculty

INTRODUCTION

The geriatric patient is subject to singular stresses associated with old age. They include physical illness which is often multiple and chronic in nature; degenerative age changes which are part of the normal physiologic aging process and psychological and sociological disturbances. These factors and others mediated by the personality of the patient give rise to behavioural problems that influence the dentist's treatment plan and his ability to perform clinical procedures. An examination is made of this element in the dental situation and recommendations are outlined for its management.

SOMMAIRE

Le patient gériatrique est sujet à des stress particuliers associés à la vieillesse. Ceux-ci comprennent des maladies physiques souvent nombreuses et de nature chronique, des dégénérescences faisant partie du processus normal du vieillissement physiologique ainsi que des désordres de caractère psychologique et sociologique. Ces facteurs, ajoutés à d'autres que peut engendrer la personnalité du patient, entraînent des problèmes de comportement qui peuvent avoir des conséquences sur le plan du traitement que le dentiste doit préparer et sur les procédures cliniques qu'il compte exécuter. On étudie ce point dans le contexte dentaire et on fait des recommandations touchant la gestion du patient gériatrique.

The behaviour of the geriatric patient is of concern to the dentist as it may adversely influence his treatment planning as well as his ability to implement clinical procedures.

This behaviour is produced by the stresses associated with old age interacting with the patient's personality structure. Prominent among these stresses are physical illness, degenerative age changes and psycho-social disturbances.¹

Prior to examining the therapeutic ramifications of these three factors it must be firmly noted that if the patient has a stable personality he is able to cope with these stresses and any resultant troublesome behaviour can be managed with relative facility by the dentist. If,

however, the patient has an unstable personality then these same stresses may give rise to behaviour that presents significant clinical problems for the dentist.

Physical illness

Physical illness plays an important role in the development of disturbed behaviour that may interfere with dental treatment.² For example, the chronic pain and impaired function induced by arthritis may result in depression and irritability. Hearing loss may provoke depression and an increasing sense of isolation.

The pain, disfigurement and possible terminal nature of cancer may incite severe anxiety. Trigeminal neuralgia with profound intermittent pain may cause anxiety.

A fractured hip can transform an apparently well-integrated individual into a wheel-chair confined mentally confused patient. The senile patient suffers from mental confusion making basic cooperation and adequate communication a problem.¹

Parkinson's disease, defective vision or the effects of a stroke reduces mobility and may make office visits difficult.

All of these emotional responses to disease may prompt the patient to modify, defer or reject proffered treatment. The mouth often becomes one of the first areas of the body to be neglected among people who suffer chronic disease and infirmities of old age.³

The dentist may be compelled to compromise his therapeutic goals in a manner that is inconsistent with his professional training.

In the face of this situation he should demonstrate to the patient a sense of understanding of these physical difficulties and when required, a willingness to provide dental care designed to meet essential needs such as making the mouth free from oral infection, dental caries and discomfort, until such time as it may be possible to administer more in-depth treatment.

The dentist may be compelled to compromise his therapeutic goals in a manner that is inconsistent with his professional training.

Psychopathologic disorders

Psychiatric disorders can lead to behaviour that obstructs dental care.

Neuroses rarely appear for the first time in old age. The stresses related to old age may bring out neurotic tendencies or aggravate existing ones, provoking psychiatric problems.

A prime example is depression which is found frequently in the elderly. The various social, psychological and physiological changes of old age create problems which precipitate in the predisposed individual feelings of depression.¹

In the neurotic depressive reaction the patient reacts to some sorrowful situation with more than the usual amount of sadness and fails to return to normal after a reasonable period of time.⁴ He may have a poor appetite, experience difficulty sleeping, disregard his personal appearance and personal hygiene.

During this period there are uncertain candidates for treatment requiring cooperation and adaptability such as removable dentures, periodontal therapy and major restorative dentistry. Modified treatment that can be supported by the emotional limitations of the patient is indicated until the patient is somewhat recovered.⁵

"One of the more common presentations of psychoneurosis in this age bracket is hypochondriasis."⁶ This is a neurotic behaviour pattern marked by an obsessive concern about one's state of health accompanied by a multiplicity of somatic complaints which are frequently used to excuse their failures and shortcomings. These subjective symptoms may confuse and mislead the dentist in arriving at an accurate diagnosis. If it is determined that these complaints are truly psychogenic then the patient should be referred for medical consultation.

Without understanding it is easy to mishandle neurotic patients as they will often besiege the dentist with unreasonable demands. Some rudimentary knowledge of the psychodynamics of neuroses is advantageous in order to develop proper empathy, i.e. a non-judgmental, non-condemning attitude for these afflicted individuals.

Spending a few minutes listening to the patient as he ventilates his feelings and demonstrating an empathetic concern for him as a human being serves to promote a therapeutic rapport which allows the dentist, among other things, to motivate

the patient to accept treatment that might otherwise be rejected.

Spending a few minutes listening to the patient as he ventilates his feelings and demonstrating an empathetic concern for him as a human being serves to promote a therapeutic rapport which allows the dentist, among other things, to motivate the patient to accept treatment that might otherwise be rejected.

Degenerative age changes

Many of the behavioural features of old age are as a result of degenerative physical changes taking place in the body.

Those affecting the central nervous system are of particular interest to the dentist. Degenerative changes in this area may lead to a diminished memory for recent events; learning new tasks may take a longer time and there is an intolerance of change in general.¹

Consequently the manner in which information is presented to the patient becomes critical. Complicated instructions where many facts and data are given simultaneously may appear confusing. Instructions should be given in a basic and clear way. Spoken instructions should be given in short sentences of simple construction and wherever possible in the presence of a relative or friend to help avoid misunderstanding. Very often supplemental written instructions are helpful and reinforcing.

At the other end, history taking, i.e. procuring of information, a vital element in proper diagnosis, involves the use of an interview technique that calls for delicacy and tact. Memory problems are compounded by hearing and speech difficulties and reduced comprehension, therefore the information given to the dentist is sometimes inaccurate and misleading. It is useful to consult with their physician or other members of the family to corroborate the facts. The dental receptionist can sometimes elicit useful information in an informal manner.

"The time required for correct analysis of a situation is much increased and this must be allowed for when they are asked to decide on, for example, a treatment plan."⁷

Speaking in general terms, with aging, values and attitudes change. Older individuals have less enthusiasm and need strong incentives, support and encouragement to embark on a new course of action. They may adjust badly to new ideas and may resist change.¹ Therefore, if the dentist presents them with progressive concepts such as the

use of hygienists, multiple operatories, comprehensive preventive dentistry, increased use of specialists, group practices and implants, one may encounter opposition or outright rejection.

In the elderly muscles become weak and uncoordinated, joints lose their flexibility, the senses of hearing and eyesight are impaired, physical strength and stamina are reduced and they tire easily. Their mobility is affected and they cannot get around with facility. As these, and other infirmities are irreversible, they may result in the patient becoming easily irritated, withdrawn, dependent and depressed.¹

Proper management demands a reduction in the speed with which technical procedures are performed as well as shorter appointments. "Understanding the nature and depth of the patient's needs will give the dentist the patience and inspiration for compassionate treatment of the whole person."⁸

"Understanding the nature and depth of the patient's needs will give the dentist the patience and inspiration for compassionate treatment of the whole person."

Psycho-social disturbances

Aging involves not only structural and biological changes but there can be marked disturbances of the elderly patient's behaviour caused by his general life situation.⁷

When one is young and facing emotional upheavals it is difficult, at times, to make a proper adjustment but when one is old one's ability to adjust to stress may be decreasing.

Old age is a period of mounting losses. The death of a spouse, other relatives and friends leaves one with feelings of loneliness and isolation. Retirement may result in a loss of status and self-esteem and in many instances creates financial worries. One is left with feelings of decreasing usefulness and increased dependency on others.⁸

Labouring under a growing realization of the fleetness of time the older person is, in addition, subjected to the negative attitudes of society which tends to downgrade the values of his experience and often fails to provide for his special needs and desires.⁹

All of these unfavorable factors result in a lack of motivation for dental care. One often hears the geriatric patient lament, "After all, how much time do I have left?"

Unfortunately the dentist himself sometimes inadvertently compounds this prob-

lem of aging by unconsciously conveying an uncaring approach to the elderly patient's dental needs. These lonely, often isolated patients in the twilight of their years require emotional support from the dentist. We must key our techniques to the emotional needs and desires of the patient wherever possible rather than keying our services to a rigid standard procedure.

Finally, any older person living alone, who has lost his self-respect and his group identity, who has financial difficulties and who is worried over chronic illness, is a high risk for suicide. The dentist must be vigilant regarding any signs of this possibility.⁴

In the face of all of the foregoing, it must nevertheless be clearly emphasized that many elderly patients are highly motivated and well-equipped psychologically, physically and financially to accept fully treatment recommendations and to undergo with equanimity and cooperation complex clinical procedures. These patients require no special management despite their advanced years.

Conclusion

An understanding of the behaviour of the geriatric patient is of importance to the dentist as it may affect both his treatment plan and his ability to implement treatment.

This behaviour is a product of the stresses singular to old age and the specific personality structure of the patient.

Three basic stress factors, physical illness, degenerative age changes and psycho-social disturbances were examined regarding their behavioural manifestations and their subsequent clinical significance. Suggestions were made to manage this element in the therapeutic situation. Δ

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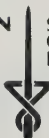
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Does the Dental Profession Care for Disabled Elders? Some Practical Questions

Michael I. MacEntee, LDS, Dip. Prosth., FRCD(c), PhD*

In the landmark document from Mr. J. Epp, Minister of National Health and Welfare in 1987, three major goals were highlighted to improve the health of Canadians:

- 1) reduce inequities in health,
- 2) increase preventive efforts, and
- 3) enhance people's capacity to cope with their own health problems.¹

Successful dentists are sensitive to the practical significance of this document, and they place a major emphasis on disease prevention and patient education. However the first goal has received less than its fair share of attention, with the result that a small, but significant, segment of the older population has been neglected by the dental profession.

This article will examine the practical implications of an oral health service for older people, and consider some of the treatment methods appropriate to a disabled population.

What are the Dental Problems of Old Age?

There is no doubt that a high prevalence of inadequate dentures, inflammatory mucosal disorders, denture related pathoses, and poor oral hygiene, can be found among residents of LTC facilities, (Table 1). Mucosal inflammation or denture stomatitis, associated with a dirty and ill-fitting denture, is the most common oral disorder among elders who use dentures, while serious life-threatening diseases, like cancer or severe infections, are very unusual. Consequently, the major objective of any dental service to disabled and institutionalized people must be to correct denture defects, control caries, and improve oral hygiene, within the context of a general plan to control disease, restore function, and maintain health (Fig. 1).

Correcting Denture Defects

Extent of the problem

About 80 per cent of the elderly institutionalized population use at least one complete denture, and about 40 per cent have some natural teeth. It is not surpris-

TABLE I

The prevalence of oral disorders among the population over 60 years of age residing in LTC facilities in Vancouver.

Disorder		Prevalence (%)
Advanced alveolar atrophy	(n = 375*)	76
Loose, unstable or structurally defective denture	(n = 604)	49
Mucosal pathosis	(n = 604)	41
Absence of bilateral occlusal contacts	(n = 604)	39
Poor hygiene	(n = 604)	36
Edentate without a denture in one or both jaws	(n = 358*)	22
Caries	(n = 238*)	58
Periodontal pockets > 5 mm	(n = 206**)	19

* Subjects with an edentulous jaw who were examined for this disorder

** Subjects with natural teeth who were examined for this disorder

ing, therefore, that loose or structurally defective dentures, and poor denture hygiene, are the main causes of mucosal inflammation, oral discomfort, and complaints in this age group (Fig. 2). Faulty dentures can interfere with eating, speaking, facial appearance, and general comfort, and they can influence the mental and physical health of an elderly feeble person.^{3,5} Moreover, because very few

dentures are marked with the owners identification,^{2,6} lost dentures are a frequent occurrence in most LTC facilities.

Treatment

Denture defects are resolved effectively in this age group by relining and repairing the denture base, since older patients adapt poorly to new dentures. It is advisable to retain and modify the existing denture where possible, but if the denture cannot be repaired, it is preferable to duplicate the general shape and tooth arrangement of the old denture as much as possible.⁷

Mucosal inflammation is controlled by improving the methods used to keep the denture clean.⁸

There are many techniques available for marking a denture base with a patient's name or identification.⁹ The simplest method is to write on the resin with a "permanent" or insoluble pen. It is preferable, however, to imbed the identification on water repellent paper within a layer of clear acrylic resin on the alveolar surface of the denture base. Most dental technicians will perform this identification procedure if requested, and there are indications that legislation will be introduced in some provinces, as in the USA, to rectify this neglect.

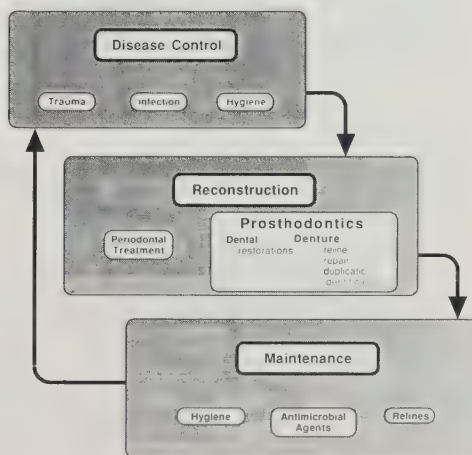


Figure 1. A rational sequence of treatment for oral disorders in disabled elders.

Limitations

Unfortunately a loose mandibular denture in an older patient frequently rests on a severely resorbed alveolar ridge, with the result that attempts to improve the fit and comfort of the denture usually ends in frustration and disappointment. So it should be no surprise that many elderly people who wear dentures are resigned to their discomfort, and that demands for dental treatment are uncommon from this segment of the population.

Controlling Caries

Extent of the problem

Cross-sectional studies suggest that caries is an infection of major proportions in dentate elders (Fig. 3), although the limited information available on the progress of this infection indicates that the incidence may be less than expected (Table 2). In fact one study of caries in an elderly institutionalized population reported that the general health of the residents deteriorated more rapidly than their teeth, and that caries caused very little discomfort or tooth loss.¹²

Recent work on managing caries has attempted to identify the microorganisms associated with the initiation and progress of the infection. Reports from Sweden indicate that specific numbers of *Mutans Streptococcus* and *Lactobacilli* cultured from saliva in children are associated closely with the initiation of caries, which suggests that it may be possible from a saliva sample to identify children who are at most risk to the disease. The value of this test in adults is unknown, but work is in progress to determine the normal range of *Mutans Streptococci* and *Lactobacilli* in elderly dentate mouths.¹³

Treatment

Management of caries, especially when it involves a root surface, remains controversial. Restorative treatment for root caries is woefully ineffective unless it is preceded by a strong dose of antimicrobial therapy. In fact clinical experience indicates that most of the restorations placed on root surfaces are undermined quickly by recurring infection.

There is mounting evidence now to support the use of a daily application of a 0.4 per cent stannous fluoride gel to provide an antimicrobial effect on the organisms associated with both caries and gingivitis.^{14,15} Chlorhexidine is even more effective as an antimicrobial agent, but there are side effects that limit its use to short periods of time.



Figure 2. A denture observed in the mouth of an elderly women who had been resident in a LTC facility for more than 3 years.



Figure 3. Rampant caries in a 75 year old man living in a LTC facility for about a year.



Figure 4. Thick layers of dental plaque on the teeth of an elderly women who had been resident in a LTC facility for at least one year.



Figure 5. A healthy and comfortable mouth in a mentally disturbed, and physically disabled, elderly female resident of a LTC facility.

Improving Oral Hygiene

Extent of the problem

Almost all elderly persons who are disabled have halitosis relating directly to inadequate oral hygiene, but the extent of tooth loss that can be attributed to poor hygiene is unknown. It is probable in this age group that poor hygiene has a more detrimental effect on the social environment than on the natural teeth. Nevertheless, the social consequences of this

neglect can cause embarrassment to the point where old people withdraw from social interaction, and get deeply depressed.³⁻⁵

Treatment

The difficulty of managing oral hygiene among disabled elders has not been resolved (Fig. 4). Kiyak and Mulligan⁵ reported that older adults respond favourably to a self-monitoring technique to improve oral hygiene, but others doubt the feasibility

TABLE II

Incidence of caries in dentate elderly populations

Source (Refs)	Residence	Number of Subjects	Time in Months	Incidence	
				Per 100 Subject	Surfaces Per Subject
Banting et al 1985 ¹⁰	LTC Facility in Ontario	45	12	24	1.36
		34	34	47	1.63
Hand et al 1987 ¹¹	Independent in Iowa	45	18	69	2.16
MacEntee et al in press ¹²	LTC facility in B.C.	48	12	33	0.88
		18	24	78	3.39

of maintaining such a programme for a prolonged period.¹⁶

Dental hygienists have been employed to work in LTC facilities, but they are in short supply, and, like dentists, they prefer to work in the familiar setting of a conventional private practice.

Specially trained "geriatric dental aides" have been considered as an adjunct to the usual dental team, and recent reports of a programme, using teams of dentists, dental hygienists, and assistants, in Toronto are encouraging to those who believe that teeth and dentures should not be a source of discomfort or embarrassment in old age (Lee, in press). Unfortunately practical experience with alternative delivery systems in dentistry is lacking, and there is little doubt that innovation is required to relieve the embarrassment, discomfort, and disease associated with poor oral hygiene in this population.

Summary

The information available on elderly people in Canada indicates that they are part of an expanding population with limited financial resources. Despite the many reports of disinterest in oral health among LTC residents, there is convincing evi-

dence that people in general, regardless of age, dental status, or deteriorating general health, want help when they believe that it is available. The current inequity in dental services can be corrected, and it is the responsibility of all health providers — physicians and nurses no less than dentists — to show that oral disease, discomfort, and disfigurement, are not an inevitable consequence of old age (Fig. 5). Δ

* Dr. MacEntee is Professor and Chairman, Division of Prosthodontics, Faculty of Dentistry, University of British Columbia. He is Specialty Editor to the Journal of the Canadian Dental Association in the specialty of Prosthodontics.

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Self-Reported Medical Conditions and Drug Use Among Elderly Dental Patients

Ray E. McDermott, DDS, MSc

Jay N. Hoover, BDS, PhD

Christine Gaucher

College of Dentistry, University of Saskatchewan, Saskatoon, Sask. S7N 0W0

ABSTRACT

There is a paucity of data describing the prevalence of systemic conditions and drug use in elderly dental patients. In this study, the charts of all patients, 65 years of age and older who were accepted for dental treatment at the University Dental Clinic in Saskatoon, Canada, during the period from January 1986 to April 1988 were reviewed. Data was obtained from a self-administered questionnaire and an oral history sheet. Cardiovascular diseases (27 per cent), orthopedic problems (24 per cent), and endocrine disorders (16 per cent), were the most commonly reported systemic conditions. Approximately 15 per cent of these patients were taking three or more medications at the time of examination. Dentists should be aware of alternate approaches for treating the medically compromised elderly patient. These findings emphasize the importance of obtaining an adequate drug history prior to commencing dental treatment. Guidelines are required to enable dental clinicians to make informed decisions, in order to provide the most appropriate therapy for this growing segment of our population.

SOMMAIRE

On dispose de peu de données touchant la prévalence des conditions systémiques et l'usage des drogues chez les patients dentaires âgés. Dans cette étude, on a révisé les fiches de tous les patients âgés de 65 ans et plus qui, de janvier 1986 à avril 1988, ont été acceptés pour des traitements à la Clinique dentaire de l'Université de Saskatoon, au Canada. Les données ont été compilées à partir d'un questionnaire rempli par les patients et d'une fiche portant sur leur histoire buccale. Les conditions systémiques les

plus communes sont les troubles cardiovasculaires (27 pour cent), les problèmes d'ordre orthopédique (24 pour cent) et les troubles endocriniens (16 pour cent). Au moment de l'examen, environ 15 pour cent des patients prenaient trois médicaments ou plus. Les dentistes devraient connaître d'autres façons pour pouvoir traiter les patients âgés médicalement compromis. Les découvertes ont fait ressortir l'importance de bien connaître l'histoire médicale des patients avant de commencer à leur donner des soins dentaires. Il faudrait donc des directives pour permettre aux cliniciens dentaires de prendre des décisions en connaissance de cause, afin de pouvoir offrir à cette partie du public de plus en plus nombreuse les soins les plus adéquats.

Canadian demographic projections indicate that the number of persons aged 65 years and over will increase from 2.7 million in 1986 to nearly 6 million in 2021.^{1,2} Evidence indicates that medical problems and the use of drugs increase with age.^{3,4,5} Only a few studies assessing the oral health conditions of the elderly have examined medical health correlates.⁶ Palmquist et al,⁷ examining a Swedish geriatric population reported a significant correlation between self-assessed general health and dental status. In an aging Canadian population^{1,2} practicing dentists should expect to encounter greater numbers of geriatric patients, many of whom could be medically compromised and exhibit the use of multiple medications. As a result, a knowledge of those most commonly occurring systemic disorders, the medications used in their management, and the possible implications this could have for the treatment of these elderly patients, is important to the dental practitioner. This knowledge will ensure the safe and proper management of these patients in

the dental office. The aim of this study was to survey a selected geriatric population and report on their medical conditions and drug use in a Canadian context.

Methods

The charts of 156 elderly ambulatory patients between the ages of 65 and 89, who comprised the total number of elderly patients accepted for treatment at the University Dental Clinic in Saskatoon, Canada, during the period from January 1986 to April 1988, were reviewed. There were 89 males and 67 females in this group. Information was retrieved from a self-administered questionnaire and an oral history sheet. The majority of the patients in this study were found to reside within a 160 kilometer radius of the City of Saskatoon.

Results

Cardiovascular disease, was the most prevalent medical condition encountered in this study group. (Table 1.) This category included hypertension and hypotension, as well as other cardiac diseases. The second most prevalent medical condition encountered was arthritis. Since many elderly patients exhibited more than one medical problem, the total number of conditions reported here is seen to exceed the number of patients evaluated in the study.

Drugs were classified according to the Saskatchewan Formulary (1988). Analgesics, including anti-arthritic drugs (23.7 per cent), hypotensives (17.9 per cent) and cardiac drugs (16.0 per cent) were the most widely reported medications in use by this group (Table 2). The miscellaneous drug group, the largest at 32.7 per cent, included many over-the-counter preparations such as vitamins, antacids and remedies used to treat the common cold. Three or more drugs were being ingested by close to 15 per cent of

the sample at the time they presented for their dental examination. (Table 3.)

Discussion

Although the sample in this study cannot be assumed to represent the elderly population in Saskatchewan, the findings may give a valid indication of the medical conditions and drug use in the ambulatory elderly dental patient.

Cardiovascular diseases, orthopedic problems and endocrine disorders were among the most commonly occurring medical conditions reported in the present study of elderly patients. Cardiovascular diseases were also found to be the most common group of diseases among long-term care patients in British Columbia.⁸ Similar findings were reported in a recent study in the United States⁵ while an earlier study reported allergies as the most prevalent medical condition encountered in a group of dental patients.⁹ This study, however, was conducted on a relatively younger age group of patients than the present study. Dentists should be aware of alternate treatment approaches for compromised patients. The relationship between medical diseases and dental treatability was recently reported by Ekelund.¹⁰ Twenty-eight per cent of the Finnish population examined had three or more diagnosed diseases, the most common being cardiovascular in nature for both sexes, followed by respiratory disorders for men and endocrine disorders for women. However, cardiovascular and neurological disorders were found to reduce dental treatability more than the other diseases. The dilemma facing the dentist is to decide whether or not to treat the geriatric patient.¹¹ Guidelines are clearly needed to enable the clinician to make informed decisions of the necessity of treatment.¹²

The finding that almost 15 per cent of the sample were using three or more medications at the time of their dental examination, raises the issues of drug dependency and also the possibility of adverse drug reactions occurring in these patients. Drugs used to treat cardiac conditions can interact adversely with local anaesthetics containing epinephrine. Other commonly used drugs may be associated with abnormal healing, predisposition to infection, gingival overgrowth, and abnormal oral-facial movements.¹³ Studies assessing the oral health of the elderly should include the soft tissues, since changes could occur in the soft tissues as oral manifestations of an underlying medical disorder or due to side effects of concurrent medical therapy.¹⁴ Nearly one-third of the present sample

TABLE 1

Types and Frequency of Self-Reported Systemic Disease Conditions

Condition	Male (N = 89)		Female (N = 67)		Total (N = 156)	
	N	%	N	%	N	%
Cardiovascular	15	16.9	27	40.3	42	26.9
Orthopedic	17	19.1	20	29.9	37	23.7
Endocrine	15	16.9	10	14.9	25	16.0
Respiratory	13	14.6	3	4.5	16	10.3
Gastrointestinal	5	5.6	7	10.4	12	7.7
Allergies	6	6.7	6	9.0	12	7.7
Tumour	2	2.2	1	1.5	3	1.9
Dermatologic	2	2.2	1	1.5	3	1.9
Other	5	5.6	4	5.9	9	5.8

were taking a variety of over-the-counter preparations. The use, or misuse, of these medications and their role in drug related problems in the elderly has not been established and warrants further investigation.¹⁵

The dentist should be cognizant of changes in drug therapy which may occur as a result of the introduction of new drugs to the market. Considering the myriad of drugs being prescribed at the present time, the importance of taking an adequate drug history is stressed. More basic and applied research, as well as continuing education courses for dental professionals is needed to clarify the inter-relationships among systemic conditions, medications, and oral problems in the geriatric patient.¹⁶ Δ

Dr. McDermott is Associate Professor, Dental Epidemiology Research Unit, College of Dentistry, University of Saskatchewan.

Dr. Hoover is Associate Professor, Dental Epidemiology Research Unit, College of Dentistry, University of Saskatchewan.

Christine Gaucher

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TABLE 2

Frequency of Use of Current Medications Recorded

Drug Group	Number	Percent
Analgesics	37	23.7
Hypotensive	28	17.9
Cardiac	25	16.0
Hormones	18	11.5
Diuretics	8	5.1
Tranquilizers		
Anti-Depressants		
Anti-Convulsants	8	5.1
Sedatives	7	4.5
Anticoagulants	4	2.6
Anti-infectives	1	0.6
Miscellaneous	51	32.7

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TABLE 3

Analysis of Patients Taking Drugs

Number of Drugs	Males (N = 89)		Females (N = 67)		Total (N = 156)	
	N	%	N	%	N	%
0	40	44.9	20	29.9	60	38.5
1	34	38.2	19	28.4	53	33.9
2	7	7.8	13	19.4	20	12.8
≥ 3	8	8.9	15	22.4	23	14.7

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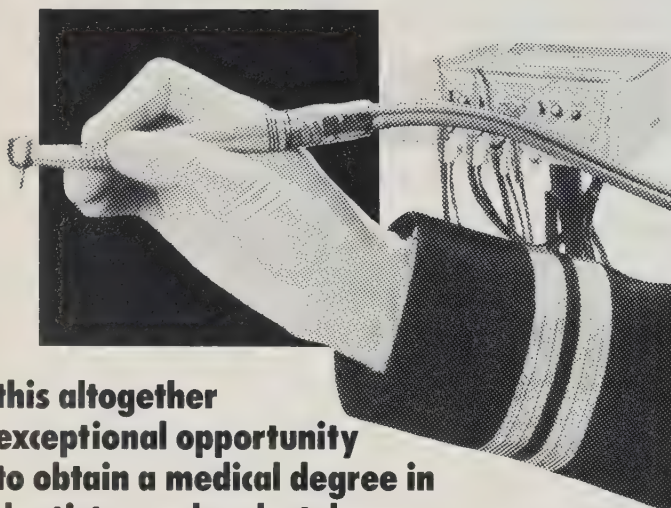
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La santé dentaire des personnes âgées hébergées: de la connaissance à l'action

Réal Boisvert, MSc, conseiller en recherche*

Guy Boisclair, DHDP, dentiste consultant*

Lucien Picotte, DDS, dentiste consultant*

ABSTRACT

Too often survey reports, studies and well advised considerations by health researchers follow one another and pile up without any real application in the day-to-day life. For example, most health professionals and health care workers and even the public in general have deplored the fact, when they read the study done by Brodeur and Simard in 1982 on the dental health of the elderly, that 72 per cent of the Quebecers of 65 years of age and older were edentulous.¹ Yet, since this study has been published, there has been no blitz or systematic action to improve the dental health of the elderly. Unless I'm mistaken, efforts were made mostly to promote prevention among the younger generations. In the Quebec Province, the works of Dr Vallée have of course fostered some progress in the field of Geriatric Dentistry.² However, it must be said again that real positive actions for the elderly patients remain few if not exceptional. Perhaps are we right when we say that seniors as a social group are somewhat neglected. Perhaps also do we consider them as a group for which there is not much left to be done. . . In reality, dental healthwise, is there anything better than to wish for the young generations not to have the deplorable fate of the elderly?*

PORTRAIT D'ENSEMBLE

*Trop souvent les rapports d'enquête, les études et les réflexions savantes des chercheurs en santé dentaire s'accumulent et se succèdent sans trouver de véritables applications dans la réalité ordinaire des personnes. Par exemple, la plupart des professionnels et des intervenants et même le grand public en général ont déploré, en prenant connaissance de l'étude de Brodeur et de Simard en 1982 sur la santé dentaire des personnes âgées, le fait que 72 pour cent des Québécois de 65 ans et plus étaient édentés¹ *. Pourtant, depuis la publication de cette*

étude, il n'y a pas eu de blitz ou d'actions systématiques pour améliorer la santé dentaire des aînés. Sauf erreur, on a surtout consenti des efforts du côté de l'action préventive auprès des jeunes générations. Bien sûr les travaux du Docteur Vallée au Québec ont permis de développer les connaissances dans le domaine de la dentisterie gériatrique². Mais, on le répète, les actions concrètes auprès de la clientèle âgée demeurent rares sinon exceptionnelles. Il n'est peut-être pas faux de dire que les personnes âgées en tant que groupe social sont vaguement délaissées. Peut-être aussi les considère-t-on comme étant une clientèle pour laquelle il n'y a plus grand chose à faire. . . Que peut-on espérer de mieux en effet que, du point de la santé dentaire, les plus jeunes ne connaissent pas le sort déplorable des plus vieux?

Et ce qui peut être dit au sujet des personnes âgées en général s'applique encore davantage aux personnes âgées hébergées. C'est du moins ce qu'a permis de constater une enquête épidémiologique réalisée sur le territoire du Département de santé communautaire du Centre hospitalier Sainte-Marie de Trois-Rivières en 1985. Le moins que l'on puisse affirmer c'est que les résultats de cette enquête démontrent que la santé dentaire des personnes âgées hébergées était à cette époque guère enviable³.

Des résultats significatifs

Ainsi, sur 978 bénéficiaires examinés dans seize Centres d'accueil différents, 851 étaient édentés. Un peu plus du tiers souffraient d'anomalie ou de pathologie de la muqueuse. La plupart des personnes qui avaient encore au moins une dent dans la bouche démontraient une condition parodontique déficiente. Enfin, on a relevé que, d'un point de vue clinique, près de 80 pour cent des prothèses étaient inadéquates.

Une perspective renouvelée

Que faire? Une des données de cette

enquête nous mit sur la piste d'une réflexion intéressante. La grande majorité des bénéficiaires étaient grandement satisfaits de leur prothèse et ce, quel qu'en soit l'état. Des considérations gériatriques élémentaires nous obligeaient donc à relativiser les chiffres. Il fallait absolument tenir compte des effets de dépérissement naturel accompagnant l'avancement en âge et les effets d'accommodement relatif à la douleur qui caractérisent les personnes âgées. Alors, en choisissant d'interpréter les données selon un modèle plus général et plus généreux, il devenait possible d'entreprendre des actions immédiates et concrètes pour améliorer la santé dentaire des aînés. Autrement dit, une lecture trop médicale des résultats, en plus d'être objectivement contestable, aurait débouché fort probablement sur un programme d'intervention très sophistiqué et particulièrement onéreux. Il suffit d'imaginer ce qu'il en coûterait pour remplacer toutes les prothèses dites inadéquates que portent les personnes âgées. Sans compter, encore une fois, que cela ne serait pas nécessairement très efficace.

Un programme réaliste d'interventions auprès des personnes âgées hébergées doit donc contenir certaines dispositions singulières. En voici un aperçu.

Un accueil enthousiaste

D'abord, les résultats de notre étude ont été accueillis avec une certaine surprise. Le personnel et les directeurs des Centres d'accueil se sont étonnés du fait que nos conclusions ne soient pas plus alarmistes. Eux qui côtoient quotidiennement les personnes âgées s'attendaient peut-être à ce que nous leur demandions beaucoup de ressources pour traiter, corriger et remédier alors que nous leur proposons plutôt de soulager, d'apaiser et d'améliorer. La perspective pratique et simple avec laquelle nous envisageons la santé dentaire des aînés a été reçue, aussi, avec un certain étonnement parce que la routine et les soins quotidiens aux bénéficiaires suggèrent que presque plus rien ne peut désormais être entrepris auprès d'une

clientèle souvent très lourde comme celle que l'on retrouve en Centre d'accueil.

Nous avons renversé cette façon de voir les choses. Animés par la conviction sincère que la situation, tout en étant déplorable, n'était pas dramatique, nous avons répandu cette idée contagieuse que, pour peu qu'on s'en donne la peine, des actions bienfaisantes et peu coûteuses pouvaient être mises sur pied pour améliorer la santé dentaire des personnes âgées hébergées.

Profitant de l'accueil favorable qui fut réservé à notre étude, nous avons créé un comité de travail chargé de concevoir un programme de santé dentaire pour les seize Centres d'accueil de la région. Ce comité était composé du président de la conférence régionale des Centres d'accueil, des deux dentistes, et de chefs des services professionnels. Voici, de façon schématique, le contenu de ce programme.

Le programme

Le programme qui a été mis sur pied s'inspirait, bien sûr, des conclusions de notre étude. Il était donc normal que nous nous rappelions d'abord que quelques bénéficiaires seulement avaient besoin de soins dentaires spécialisés concernant les prothèses et la dentition naturelle; ensuite, il fallait insister sur cette idée que la grande majorité devaient pouvoir compter sur des services de suivi, de support et d'information; enfin, toutes les personnes hébergées devaient profiter d'une attention prophylactique régulière. Il s'agissait aussi et surtout d'offrir aux bénéficiaires et aux intervenants de Centres d'accueil un programme à la fois simple, souple et adapté aux conditions particulières de chaque établissement.

Pour ce faire, les interventions ont été partagées en deux volets: il y avait une dimension curative et une dimension préventive.

Le volet curatif.

Des discussions soutenues et une collaboration intense entre le Comité de programmation et les dentistes de la région ont permis de recruter autant de dentistes qu'il y a de Centres d'accueil. Le dentiste ainsi affecté à l'établissement a hérité d'un carnet de tâches très précises. Celui-ci devait, en premier lieu, procéder à un examen de tous les bénéficiaires en place ainsi qu'à tout nouveau bénéficiaire. Ensuite, il avait à monter un dossier individuel sur chacun d'entre eux et décidait, le cas échéant, d'un plan de traitement et de ses modalités en collaboration avec le bénéficiaire.

Le volet préventif.

Une formation complète, résumé dans

un document spécifique⁴, a été entreprise auprès des intervenants. Il s'agissait de leur fournir des notions élémentaires sur la santé bucco-dentaire des personnes âgées. Une attention particulière a été accordée aux éléments suivants: dents naturelles, gencive, prothèses, mauvaise haleine, brûlements, insalivation, stomatites prothétiques, techniques préventives et pharmacologie. En plus de cette formation, un plan d'actions propre à chaque Centre d'accueil a été créé afin que tous les bénéficiaires puissent profiter d'un suivi régulier concernant l'hygiène de base en santé dentaire.

Conclusion

Le programme a maintenant deux ans. Déjà nous songeons à en faire l'évaluation. Un projet en ce sens est en préparation avec des chercheurs de l'Université Laval. Cette étape n'est pas moins essentielle. Elle nous permettra de faire le point sur les forces et les limites du programme.

Surtout, elle sera comme un excellent prétexte pour dire aux intervenants, aux bénéficiaires et aux gestionnaires des Centres d'accueil qu'en santé dentaire comme ailleurs, il y a toujours place pour l'amélioration. Δ

• Département de santé communautaire
Centre hospitalier Ste-Marie, Trois-Rivières, Qué.

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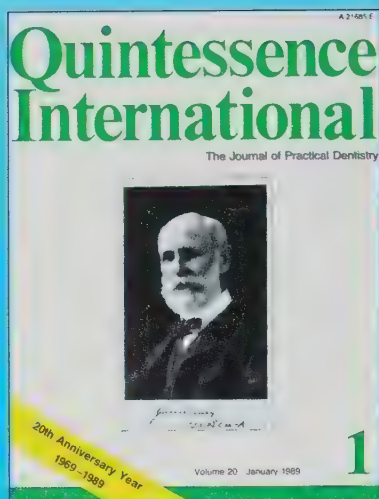
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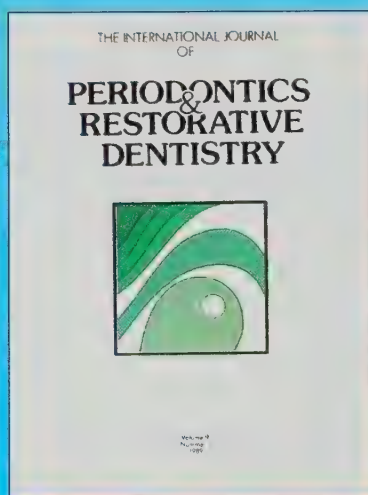
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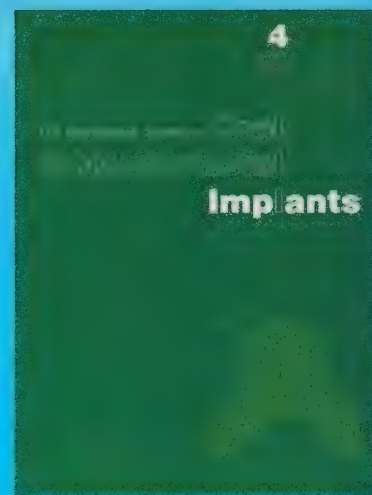
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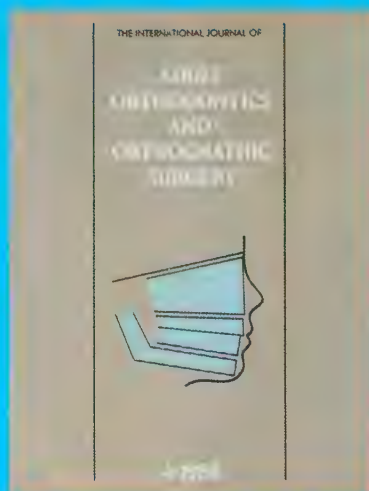
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Specialty Features

Oral Radiology in Canada

Colin Price, BDS, MDS, FDSRCS, FRCD(c)
Vancouver, B.C.

Professor Wilhelm Roentgen

Oral radiology began, in common with all forms of radiology, with the discovery of x-rays, in November 1895. Professor Wilhelm Roentgen noticed fluorescence of a barium platinocyanide screen some distance from a discharge tube which he fortuitously covered with black paper. Since the cathode rays (later identified as electrons) had poor travelling properties, he was quick to realize the phenomenon created by a previously undescribed form of radiation.

His interests were mainly in the field of physics, but the capabilities of the new rays to penetrate soft tissues and form an image of the underlying bones did not escape him. One of the illustrations in his first paper was a radiograph of his wife's hand. The significance of Roentgen's discovery was announced in a 1896 Frankfurt newspaper with prophetic accuracy. . .

"Biologists and physicians, especially surgeons, will be very much interested in the practical use of these rays, because they offer prospects of constituting a new and very valuable aid in diagnosis."

Roentgen, who was awarded the Nobel Prize for physics, steadfastly refused to become caught up in the commercial aspects of imaging. He remained ever



Dr. Colin Price

dedicated to his laboratory experiments. There is no evidence he attempted to form images of teeth. Dental radiographs were produced by others in Germany, America and England, within the first few weeks of the discovery.

Dr. Edmund Kells

Among the many involved in early radiography, Edmund Kells, a dentist in New Orleans, achieved the most. Before the turn of the century, he was advocating the best images of a tooth could be obtained by keeping the image receptor parallel with the long axis of the tooth and directing the x-ray beam perpendicular to both. Those early exposures lasted up to 40 minutes and the production involved a high degree of skill and patience.

Unfortunately, Dr. Kells did not realize the dangers of overexposure to x-rays; he developed cancer in his right hand — the result of holding films in patients' mouths. Eventually he lost his hand, arm and shoulder enduring 42 operations over 20 years. In 1928 at the age of 72, to escape his own pain and his family's suffering he took his own life.

Cieszynski in Poland claimed himself to have been the first to suggest the bisecting angle technique. It remained the preferred method for almost 40 years until Gordon Fitzgerald in California drew

attention to its limitations and promoted the paralleling technique.

Dental radiography in Canada was based on a combination of British, European, and American input. On the West coast, a group of dentists realized the standards of radiography practiced in California were superior to theirs. They invited Fitzgerald to present a course in Canada; he responded by inviting them to San Francisco instead. This was the origin of the West coast Dental Roentgenology Workshop, later renamed the Fitzgerald Dental Radiology Workshop. It is active and flourishing almost 40 years later.

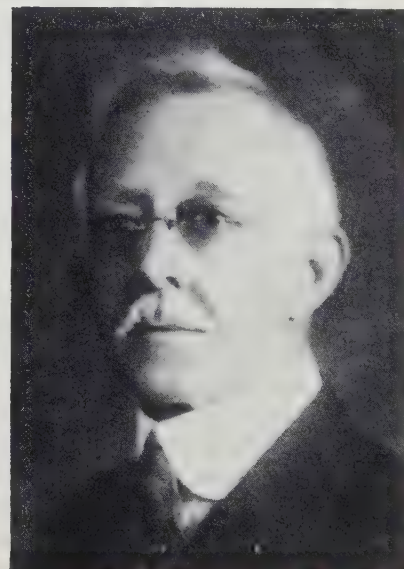
Dr. H.M. Worth

The one man to influence the Canadian radiology scene more than any other was Dr. H.M. Worth. During 1919, as a senior dental student at Guy's Hospital Dental School, London, England, Worth was asked to take over the dental radiography service. He soon became fascinated. Dr. Worth decided the best approach would be to first pursue a medical course and achieve recognition as a medical radiologist. He graduated in medicine in 1925, gained a diploma in Medical Radiology the following year and later was awarded the Fellowship of the Royal College of Radiologists.

His skills at interpreting radiographs matured rapidly during his work at Guy's



Wilhelm Conrad Roentgen



Dr. Edmund Kells

Hospital and in private radiology practice in Harley Street. He emigrated to Canada in 1939, because of ill health. His health steadily improved and, not being a man to be idle, he spent a year visiting radiology departments in the USA. In 1940, during a visit to Toronto, he was asked to help in the training of radiologists for the Air Force and Army. He instructed more than 70 such radiologists. Many of them continued their careers in radiology after completing military service.

While in Toronto he became attached to the Faculty of Dentistry at the University of Toronto and this involvement led to the development of oral radiology. Dr. Guy Poyton was recruited from London, England, and later set up the first, and still only, graduate program in oral radiology in Canada. Dr. Worth retired early and returned to British Columbia to write his book. It will remain a classic, containing a wealth of material gathered over almost half a century. His meticulous attention to detail and incredible powers of perception and deduction enabled him to gain information from radiographs not evident to many of his colleagues.

When the Faculty of Dentistry was established at the University of British Columbia in 1962, Dr. Worth was again ready to help and guide the development of oral radiology. During his frequent trips across the country, even when beyond the age of 80, he inspired many to follow a career in oral radiology and stimulated a keen interest in many more.

Dr. Guy Poyton

Dr. Guy Poyton had been taught by Dr. Worth in 1932 and had developed a keen interest in oral radiology. Some 20 years later it became apparent the field had great potential for growth and a custom-made course was arranged for Dr. Poyton at Eastman Dental Hospital, East Grinstead, and Guy's Hospital in London, England.

When Dr. Poyton moved to Toronto in 1959 he made attempts to launch a post-graduate course, but was discouraged from doing so since oral radiology was not a specialty and it was believed there was no future for the graduates. A few years later it was decided a graduate degree course might be more appropriate than a postgraduate diploma course, since most of the individuals taking oral radiology would end up in academic positions. The MScD (Radiology) degree was established in 1965. Dr. Doug Stoneman who established the oral radiology component at the new Dental Faculty at the University of Western Ontario, returned

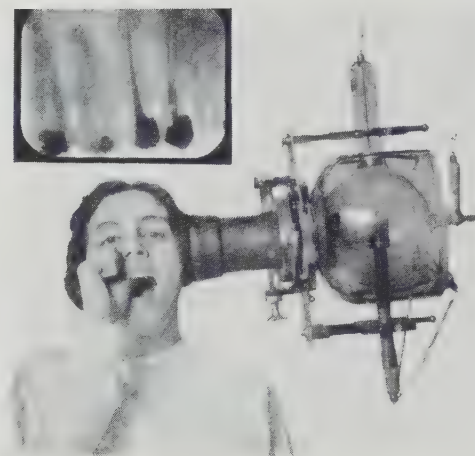


Dr. H.M. Worth

to Toronto to help with the new graduate program.

Oral Radiology A Specialty

Shortly after the graduate program was secure at the University of Toronto the possibility of specialty recognition in oral radiology was explored. Following formal application the Canadian Dental Association conferred specialty status to oral radiology in 1973.



Radiology, about 1915

As the graduate program in Toronto matured and the specialty developed it became evident there was a need for a national representative body. Dr. Axel Ruprecht provided much of the leadership and the founding meeting of the Canadian Academy of Oral Radiology was held in Toronto on January 15, 1973. Annual meetings with a scientific component have been held ever since. The Canadian Academy provides vital communication between oral radiologists and other

branches of dentistry and medicine. In common with other small specialties oral radiology suffers from being disseminated across so vast a nation.

The Royal College of Dentists of Canada was incorporated in 1965 and admitted five oral radiologists in 1974. Initially these were in the Section of Dental Sciences, but were later transferred to the specialty of oral radiology. Fellowship and Membership into the College are by examination in the specialty.

Currently among the oral radiologists there are eight Fellows and two Members of the Royal College. Eighteen oral radiologists are licenced as specialists with provincial licencing bodies. Five of the provinces have no oral radiology specialists. In Quebec, a joint specialty of oral medicine is recognized and successful completion of an approved program in either oral radiology or oral pathology leads to certification in oral medicine.

World Affiliation

The earliest recorded association was the German Society of Dental Roentgenology in 1914. The Chilean Society of Dental Radiology founded in 1940 is probably the oldest still in existence. Organizations were established in United States in 1950, Japan in 1951 and Britain in 1958.

The American Board of Oral and Maxillofacial Radiology was established in 1979 and grants diplomas after examination. Oral radiology is not accepted as a specialty in the United States. Maxillofacial radiology received specialty recognition in Sweden in 1982 when it was decided that courses would be approved by the Medical Board. A Diploma in Dental Radiology was approved by the Royal College of Radiologists of England in 1983.

Dr. Sydney Blackman, founder and President of the British Society of Dental and Maxillofacial Radiology, had proposed an international society in 1962 but this did not come to fruition. Dr. Gregorio Faivovich, the President of the Chilean Society of Dental Radiology, decided against all odds to attempt such a venture. The first International Congress of Dento-Maxillo-Facial Radiology was held in Chile in August 1968 with more than 1000 participants. Triennial meetings of the International Association of Dento-Maxillo-Facial Radiology have been held since. The Congress will be hosted by Budapest in 1991 and by Seoul in 1994. The Journal of Dento-Maxillo-Facial Radiology is published quarterly and has reached a high standard of production and content.

The Present

The current status of oral radiology varies around the world, depending upon health care services and economic restraints. In Canada there is a good record for the practice and teaching of radiological interpretation based on the principles established by Dr. Worth. The relationship with medical radiology is better than is the case in some nations, but lags behind others. Some progress has been achieved in advancing the specialty but more needs to be done.

Oral radiology has no pretense to encroach upon medical radiology. There exists in the field of medical imaging a vast and rapidly expanding amount of knowledge. With the exception of a very small number of dentally qualified individuals, there is generally scant understanding of diseases of the teeth and jaws among medical radiologists. On the other hand, it is impossible for general dentists and dental specialists in other fields to achieve an adequate knowledge in the area of radiology. Oral radiology is a bridge connecting the two land masses of radiology and dentistry.

Medical and Dental Differences

Most medical radiologists, (again there are notable exceptions), are not enthusiastic about the dental area. Certainly much of dentistry lacks the glamor and excitement of areas of medicine. In general, oral radiological imaging is less lucrative. There are fundamental differences between medicine and dentistry. Intraoral radiographs have resolution far beyond that of most medical imaging systems. Generally, an oral radiologist spends a great amount of time perusing a relatively small number of radiographs and forming a detailed evaluation of minute features. A medical radiologist tends to devote less time to a larger number of images and produces a less detailed evaluation of larger features. There are many similarities and overlaps but the difference exists.

The Requirements of an Oral Radiologist

The first necessity is a thorough knowledge of all the imaging techniques which may be of value to dentistry. It is essential to prescribe and advise appropriate investigations with due regard to the anticipated benefit in relation to the cost, in terms of both finance and possible risk. The investigations must be conducted in a manner achieving maximum information at minimum cost.

Secondly, a detailed knowledge of normal appearances is prerequisite to interpretation. This is based on the anatomical configurations of the relevant structures, together with an understanding of the effects of the imaging techniques on their appearances.

Thirdly, an oral radiologist must have a thorough understanding of all the forms of disease which are of relevance to dentistry together with the variety of appearances they may present in diagnostic images. A knowledge of the clinical presentations of disease is of importance both in planning radiographic investigations and in interpreting the results. Investigation and interpretation are built on these essential requirements.

Since the majority of oral radiologists are ultimately employed in dental faculties they must be capable of teaching. As it is no longer acceptable to expect clinical teachers to develop teaching skills by a process of osmosis, they must be directed and actively stimulated. In addition to undergraduate teaching it is essential oral radiologists take an active part in continuing education to improve the standard of radiology in dental practice and to promote the specialty. Oral radiologists must be trained in research and scholarly activity. Research in oral radiology, as with every discipline, is vital; not only for survival in a university environment but also to advance knowledge and reduce ignorance.

The Scope of Radiology

The glamor of recent advances in imaging techniques cannot be allowed to detract from high quality production and interpretation of dental radiographs. The importance of radiology in endodontic diagnosis and treatment was obvious within a few weeks of Roentgen's discovery. The applications to all other fields of dentistry followed rapidly and will continue to evolve.

Oral radiology is expanding in two directions. It has to keep up with the increase in the scope and complexity of dentistry. In addition, the explosive progress in medical imaging must be harnessed to extend diagnostic yield in dentistry.

The dental area clearly includes the jaws and their associated neural, vascular, and muscular systems. The scope of imaging of the temporomandibular joint is expanding almost exponentially. Dentists both intentionally and accidentally become involved with the maxillary sinuses, and it is important for them to help bridge the gap between dentistry and otorhinolaryngology. Dental aspects of

investigation and treatment of sleep apnea are now well established. Investigations of the salivary glands are further relevant dental endeavors. Dentists are involved with almost everything from the floors of the orbits down to the hyoid bone and back to the pharynx. Beyond these limits they must extend their interest to the rest of the skeleton in the case of disorders of bones and joints which are relevant to dentistry, and to the rest of the body in a variety of systemic diseases which have dental effects.

The range of disease is as varied as the topography and extends from caries and periodontitis throughout the spectrum of conditions which occur in the dental area. It certainly includes studies of growth and development and the planning of orthodontic and surgical corrections of anomalies. While the treatment of malignancies is within the remit of oral radiologists in countries like Japan, this is not the case in North America. However, diagnostic investigations of suspected neoplasms are legitimate pursuits.

Imaging Techniques

Intraoral

The first x-ray image demonstrated by Roentgen took place in 1895. In less than 30 years — by the mid 1920s — the presence of an x-ray machine was fairly commonplace in dental operatories. Intraoral examinations by means of periapical, bitewing and occlusal radiographs have remained the most important both in volume and resolution of the information they provide.

Extraoral

Panoramic radiography has been on the scene for more than 30 years and has expanded the area of investigation. Panoramic radiographs provide much less detail than intraoral radiographs. They are over-utilized in some areas and are poorly understood by most who interpret them. One of the biggest stumbling blocks is their deceptive apparent simplicity.

Extraoral radiography has widespread use in dentistry from cephalometry through temporomandibular joint radiography to investigation of the many disturbances of structure and function within dentists' purview. The use of contrast media in sialography, arthrography, and to demonstrate abnormal communications is commonplace. Linear and hypocyloidal tomography have further improved imaging capabilities by providing sectional views without superimpositions.

Computed Tomography

CT enables better demonstration of tissues with small attenuation differences, making it particularly useful for lesions which involve soft tissues. The versatility of image manipulation in CT, especially two and three dimensional reformatting, provides valuable information in traumatic injuries, studies of developmental anomalies, and planning implant insertion.

Magnetic Resonance

MR imaging offers still better soft tissue depiction, with little if any risk. In addition to providing the most information currently available about the soft tissues of the temporomandibular joint, MR has many applications in the dental field. Cost and availability impose severe limitations at present.

Nuclear Medicine

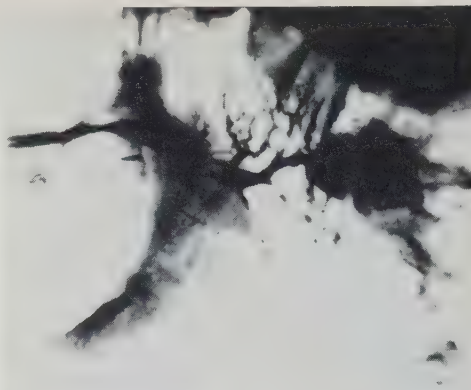
Radionuclide studies relevant to dentistry include the use of technetium diphosphate and pertechnetate to demonstrate activity in bone and salivary glands respectively. These nuclear medicine procedures differ from most other imaging systems in that they demonstrate function rather than structure. A recent development, positron emission tomography, has been still more dramatic in this respect. PET shows areas of specific biochemical activity. While it has no direct application in clinical dentistry at this time, the potential for studying phosphorylation in muscles is an exciting possibility.

Ultrasonography

Ultrasonography uses echoes of acoustic waves from interfaces between different tissues to produce images. This has particular advantage in demonstrating soft tissue or fluid filled masses, as may occur in the neck. Ultrasound can be used to depict salivary stones, although routine radiography is probably better for this purpose. It is of little value in imaging hard tissue, though the conduction of ultrasound has been used to study the healing of fractures.

The Future

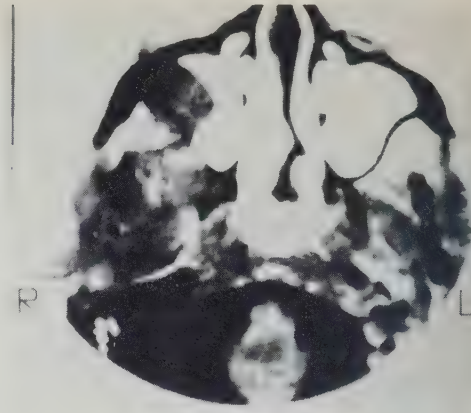
Since the author makes no claims to powers of clairvoyance, projections for the future will be sparse. His record for predictions is not particularly impressive. Ten years ago he predicted dental xeroradiography would be routine in all dental



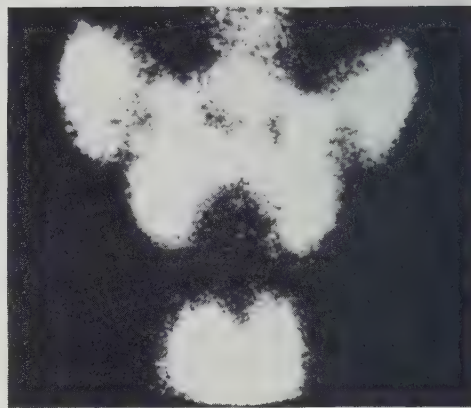
Sialogram



Magnetic Resonance



Computed Tomography



Radionuclide

offices before now. Xeroradiography has provided several interesting applications to oral radiology, but it is far from commonplace. While dental xeroradiography involves less radiation exposure than D-speed intraoral radiography, extraoral xeroradiography necessitates up to 40 times the exposure of conventional radiography.

The phenomenal progress of computer technology has made a great impact on imaging. Indeed, CT, MR, and PET would not have been possible without powerful computers. Digital imaging is coming to the dental field and will undoubtedly expand greatly. At this time, either the resolution compares very unfavorably with conventional radiography or a very large amount of computer memory is necessary. High resolution monitors are very expensive and the transmission of digital images is very slow.

Once an image is digitized, much can be done with it in the way of enhancement and comparison. The main limitation in comparing dental radiographs is standardization. It is possible to correct for changes in position between the object and film, but not for those between source and object. These are more difficult to control. The principle of tomosynthesis may provide a solution to this

problem. In this method, several radiographs are produced with predetermined relationships between the source, film, and object. The digitized images are stacked and information reformatted to produce images in additional planes. At present, the images produced by tomosynthesis are poor in quality, but this situation will undoubtedly improve.

Radiation exposure will probably be reduced further by faster films, screens, and changes in beam quality. However, we are probably close to the minimum exposure possible without loss of information. To what extent we shall be prepared to accept inferior images, and at what level our diagnostic gain will become inadequate remains to be established.

It is certain there will be changes. As the advances in medical imaging spill over into oral radiology, the status of the specialty will inevitably increase. The Toronto graduate program will maintain its tradition to train oral radiologists of high calibre. A second program is planned on the West coast in the next few years. Δ

(The material used to this article has been taken from many sources which cannot be readily acknowledged, and no originality is claimed. At the same time, the opinions expressed are those of the author, and he accepts full responsibility for them.)

“Les clés du succès”

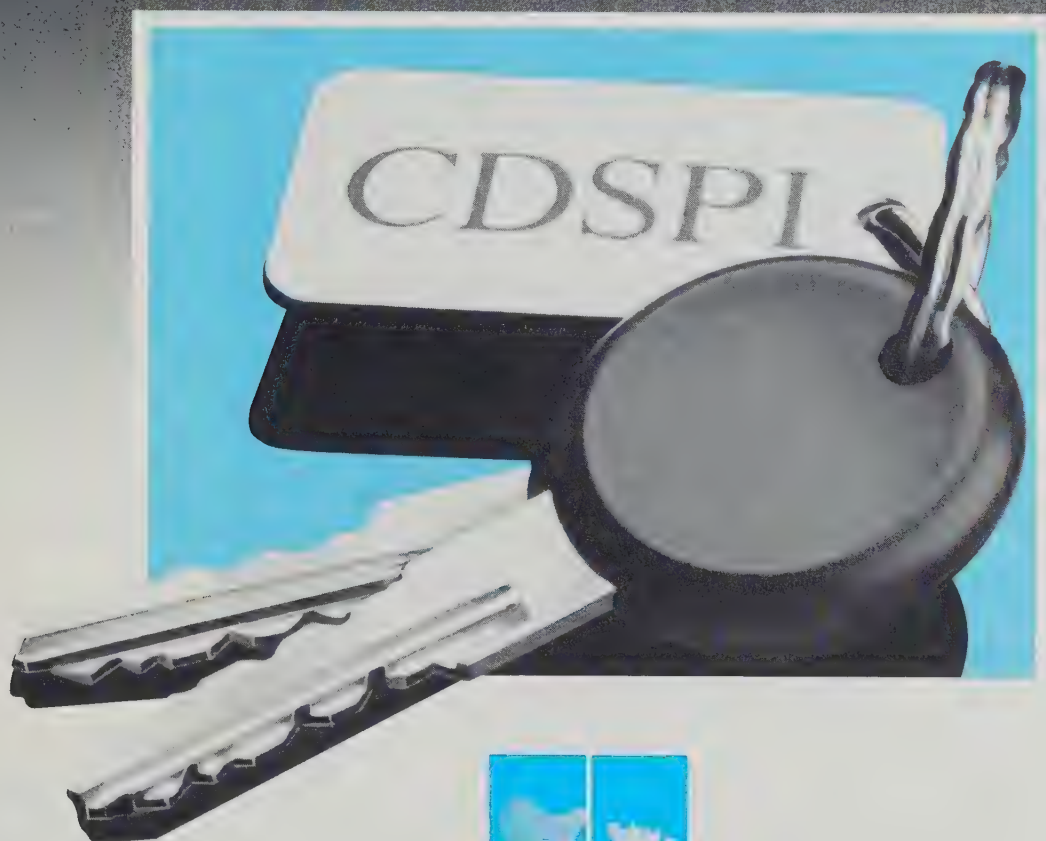
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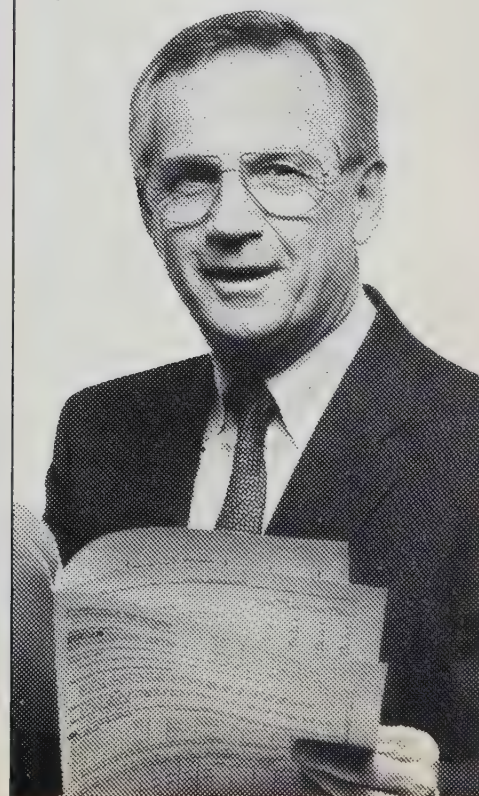
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Retention and maintenance of fissure sealants over 10 years

R.G. Romcke, DDS, DDPH, FRCD(C)

Charlottetown, P.E.I.

D.W. Lewis, DDS, DDPH, MScD, FRCD(C)

Toronto

B.D. Maze, DDS

R.A. Vickerson, DDS

Charlottetown, P.E.I.

ABSTRACT

The long-term efficacy (retention and caries prevention) of fissure sealants is well documented. However, the effectiveness of contemporary sealants under sometimes less than ideal field conditions is not so well reported, nor are the clinical issues of the long-term extent of partial sealant loss, resealing needs and sealant replacement under such conditions. The results of a 10-year follow-up of 8,340 chemically-cured sealants placed between 1978 and 1985 in selected "high-risk", first permanent molars of children of moderate to severe decay susceptibility are presented. These children were annual participants in the Prince Edward Island Children's Dental Care Program. Complete sealant retention was 89 per cent after one year and 60 per cent after 7-9 years. One year after insertion, 6 per cent of sealants required maintenance resealing; thereafter it was 2 per cent to 4 per cent per year. Sealant removals because of MO amalgam placement or occlusal decay were very low, about 2 per cent and 1 per cent, respectively, in each of the first five years. The overall annual sealant success of 96 per cent after one year and 85 per cent after 8-10 years supports the careful application of chemically-cured sealants under field conditions and the use of annual recalls to allow minimal sealant maintenance.

SOMMAIRE

On est bien documenté touchant l'efficacité à long terme (pouvoir de rétention et prévention des caries) des résines pour scellement des fissures. Par contre, on l'est moins sur l'efficacité des résines contemporaines utilisées parfois dans des cliniques volantes et dans des conditions moins qu'idéales. On l'est moins aussi sur les aspects cliniques que les pertes partielles d'étanchéité peuvent avoir à

long terme, sur les besoins en rescèlement et sur le remplacement des résines dans des conditions semblables. Voici les résultats d'une étude de dix ans portant sur 8.340 obturations à la résine polymérisée chimiquement effectuées entre 1978 et 1985 sur les premières molaires permanentes d'enfants "à risques élevés", c'est-à-dire dont la susceptibilité aux caries était de moyenne à grave. Ces enfants étaient des participants annuels au Programme de soins dentaires pour enfants de l'Île-du-Prince-Édouard. Le pouvoir de rétention des résines était de 89 pour cent après un an et de 60 pour cent après sept à neuf ans. Une année après le traitement, 6 pour cent des obturations avaient besoin d'être rescellées; par la suite, cependant, ce pourcentage tombait de 2 à 4 pour cent par année. On a changé, au cours des cinq premières années, très peu d'obturations à l'amalgam parce qu'elles se trouvaient sur la face mésiale-occlusale ou à cause de caries occlusales, environ 2 pour cent et 1 pour cent par année respectivement. Le succès général des obturations était de 96 pour cent après un an et de 85 pour cent après huit à dix ans, et ces données confirment qu'il faut appliquer avec soin les résines polymérisées chimiquement dans des cliniques volantes et faire des rappels annuels pour assurer un entretien minimum des obturations.

The Prince Edward Island (P.E.I.) Children's Dental Care Program, which began in 1971, provides dental services to all P.E.I. children of eligible ages (currently three to 16 years). Services are provided in private dental offices and in fixed and mobile clinics staffed by public health personnel. In considering the benefits that preventive services such as fissure sealants might provide to program participants, several excellent review articles¹⁻³ are available. They show unequivocally that carefully applied

fissure sealants, especially when they are used selectively in patients with teeth liable to decay,⁴ give high levels of dental caries protection and sealant retention — two closely related characteristics⁵ — for periods of five to seven years. However, this evidence supporting sealant efficacy mainly arises from randomized clinical trials which, characteristically, are done under ideal and sometimes unrealistic circumstances. Until recently,^{4,6} many of the earlier field studies carried out in public health settings to assess the real-life effectiveness of sealants gave equivocal findings.⁷⁻⁹ Thus, in 1978, the Dental Division of the P.E.I. Department of Health and Social Services began a field study to evaluate the use of fissure sealants as an additional component of its program which provides complete dental care to eligible children.

Although the primary purpose of this long-term field study was to prevent dental caries from developing in sealed surfaces deemed to be at high risk, a number of additional objectives of practical interest to clinicians were identified. These clinical issues included the extent of complete sealant retention, partial sealant loss and maintenance resealing needs, as well as the amount of replacement of intact sealants by mesio-occlusal restorations and of failed sealants by occlusal restorations.

Methods and Materials

All children attending one large mobile clinic, that was located each year at two different geographic sites, participated. Each year from 1978 to 1985, all permanent molar teeth of those children meeting specified criteria had fissure sealants applied.

Caries prevalence in the study areas was moderate to high. The Survey of Oral Health in Atlantic Canada, carried out in 1982, indicated that P.E.I. children aged six and seven years had an average deft

of 5.24 and a defts of 11.64. Children aged 13 and 14 had an average DMFT of 5.87 and a DMFS of 10.53. Most of this latter age group's dental caries was in first permanent molars which had 3.48 carious and restored teeth, on average. Thus, 87.0 per cent (3.48/4.0) of all first permanent molars had been attacked by dental caries. Accordingly, the potential benefit of fissure sealants for these children was very high.

The sealant used was an autopolymerized (i.e., chemically-cured) resin without a filler. * This type of sealant was considered by Mertz-Fairhurst³ in her review to be the present day standard in clinical practice. It was applied according to the manufacturer's instructions by two dentists — one participated in the first half of the study period and the other in the second — and six dental hygienists. Rubber dam was rarely used; moisture control was achieved by the use of cotton rolls and "Dri-Angles". **

Since many fissure surfaces do not decay, selection criteria for the use of fissure sealants are recommended.⁴ The selection criteria employed in this study required that sealing be limited (primarily) to first permanent molars which had been erupted for three years or less and had deep sticky pits and/or fissures. Thus, most of the study subjects were six to eight years old when their original sealants were applied. Because of the annual recalls, the sealants were usually placed a few months after the molars were fully erupted. Using these selection criteria, about one-half of the first permanent molar teeth in these children of moderately high caries susceptibility who resided in non-fluoridated communities were sealed. Besides first molars, the data reported here include a small number of permanent upper lateral incisors and second molars with deep pits and/or fissures that were conveniently available for sealing when the children were examined.

At each annual recall examination from 1979 to 1988, the status of each sealant and its associated treatment requirement were recorded as: completely or partly intact with no treatment required; partly or completely missing with sealant maintenance (by further addition or replacement) required; sealant failure because of the presence of occlusal decay which required an amalgam restoration; and intact occlusal sealant with proximal surface decay which required removal of the sound sealant and its replacement with, usually, a MO amalgam. The required treatment, if any, was then performed.

TABLE I

Number of teeth sealed and available for recall evaluation in each of 10 recall years

YEAR	TEETH SEALED	1	2	3	4	5	6	7	8	9	10
1978	223	201	190	171	159	135*	131	110	94	74	66
1979	1235	1118	1000	900	698*	713	620	536	417	357	
1980	1162	960	814	639*	606	571	481	338	287		
1981	1211	1032	759*	685	656	553	0**				
1982	1183	824*	700	620	546	0**					
1983	913	604	588	533	0**						
1984	1119	922	798	0**							
1985	1294	1046	0**								
1986	0	0**									
TOTALS	8340	6707	4849	3548	2665	1972	1232	984	798	431	66

° Sealant recording on "new" teeth discontinued in 1986.
 * Program eligibility for children aged 13 and 14 temporarily cut back, thus reducing their recall potential.
 ** Recall examination results discontinued except for teeth sealed in 1978, 1979 and 1980.

- * Delton, Johnson & Johnson Inc., 2155 Boulevard Pie IX, Montreal, Quebec, H1V 2E4.
- ** Theta Dri-Angles, Medical Dental Stationers, Ltd., 80 Martin Ross Avenue, Downsview, Ontario, M3J 2T3.

Findings

The number of teeth sealed and subsequently examined each year is given in Table I. Between 1978 and 1985, 8,340 teeth were sealed. About 80 per cent of these teeth (6,707) were available and examined at the one-year recall. Lower percentages of sealed teeth were available for recall examination in the second through tenth recall years. However, this is not unusual for studies of this length simply due to patient attrition. Traditional follow-up difficulties were accentuated by a temporary cut-back in 1983 in program eligibility of children aged 13 years and older. An administrative decision in 1987 to discontinue the recording of recall examination results for all teeth, except those originally sealed in 1978, 1979 and 1980, also lowered the total number of teeth examined at the second through sixth recalls (Table I). However, the overall loss of patients (teeth) over time in terms of numbers and the reason for loss were reasonable and give no cause to believe that the findings presented here are biased. Despite these losses, nearly 31 per cent of the 2,620 teeth originally sealed in 1978-80 were examined at the eight-year recall and 30 per cent of the 1,458 teeth originally sealed in 1978-79 were examined at the nine-year recall.

The status of sealants at each of the 10 annual recalls is reported in Table II. Complete sealant retention was very

high, ranging from 89 per cent one year after insertion and 81 per cent after two years to about 60 per cent after seven to nine years. In addition, 1-4 per cent of the sealants examined each year were partly but sufficiently intact so that no maintenance resealing was required for them to be considered cariostatic. One year after initial insertion, about 6 per cent of sealants required maintenance resealing; thereafter, only about 2 to 4 per cent required maintenance resealing each year. It is important to note that the columns of Table II marked with a single asterisk are cumulative from recall year one to 10. Thus, the approximately 22 per cent listed as having had maintenance resealing in recall years eight and nine indicates the relative number of sealants that had to be resealed at least once over the eight to nine years since they were originally inserted.

A number of teeth required resealing on more than one occasion, a few such teeth had hypoplastic defects. For others there was no obvious reason. A pilot study of 713 teeth sealed eight-10 years previously indicated that approximately one-quarter of all resealed teeth had been resealed more than once. Of the 168 teeth resealed, 28 were resealed twice, eight three times and two four times. Also, a few teeth which eventually received amalgam restorations were found to have earlier required resealing. The overall effect of this additional resealing was to increase the total resealing requirement for the pilot group from an average of 2.6 per cent per year to an average of 3.8 per cent per year.

TABLE II

Retention and success of fissure sealants over 10 years

RECALL YEAR	OF TEETH EXAMINED	PERCENT COMPLETELY INTACT SEALANT*	PERCENT PARTIALLY INTACT NO RESEALING NEEDED*	PERCENT REQUIRING AND RECEIVING MAINTENANCE RESEALING*	PERCENT TOTAL* SUCCESS**	PERCENT INTACT SEALANT REPLACED BY MO RESTORATION*	PERCENT FAILURE: OCCLUSAL DECAY AND RESTORATION*
10	66	40.9	7.6	36.4	84.9	10.6	4.5
9	431	57.7	4.4	22.3	84.4	11.1	4.4
8	798	59.2	3.0	22.7	84.9	10.9	4.1
7	984	63.4	2.6	18.9	84.9	11.4	3.7
6	1232	64.9	3.0	17.1	85.0	11.1	3.9
5	1972	65.2	2.8	18.1	86.1	10.3	3.6
4	2665	68.1	2.6	16.1	86.8	9.5	3.7
3	3548	74.4	1.9	12.9	89.2	7.6	3.2
2	4849	80.9	1.7	10.4	93.0	4.7	2.2
1	6707	89.3	.9	6.2	96.4	2.2	1.4

* These percents are cumulative from year 1 through to year 10.

** Percent Total Success = % complete retention + % partly intact but not requiring resealing + % which required and received maintenance sealing.

Total sealant success from the practical perspective of an on-going field program involving annual recalls can be considered as the sum of teeth displaying complete sealant retention, plus those with partial sealant retention not requiring resealing, plus those which required and received maintenance resealing. Defined this way, about 85 per cent of the sealants were classified as successful from four to 10 years after they were inserted, and 96 to 89 per cent were successful from one to three years after insertion (Table II).

In addition to this level of success, about 2 per cent of intact sealants in each of the first five recall years – and less after then – had to be removed each year to allow the placement of MO restorations because of the development of proximal surface caries.

Very few of the sealants were failures, which are defined as the development of decay on the occlusal surface of a previously sealed tooth where the sealant is lost. As Table II shows, a cumulative total of only 4.5 per cent of sealed teeth decayed and required occlusal amalgams. Approximately, 1 per cent of the occlusal surfaces that had been sealed became carious in each of the first four years and essentially none thereafter.

Discussion and Conclusions

This study of the use of sealants under field conditions demonstrated that fissure sealants are capable of long-term retention and that with annual examination and replacement, where necessary, the success rate is very high (85 per cent to 96 per cent). Concomitantly, the long-

term failure rate is very low since only about 3 to 4 per cent of the occlusal surfaces of molar teeth with deep pits and/or fissures that had been sealed for seven to 10 years had decayed in these children of moderately high caries susceptibility. Even without a control group for comparison, the high preventive potential of sealants on teeth selected for sealing because they appeared to be at high risk is self-evident. The complete retention of sealant (without need for resealing) after seven to nine years of 58 to 63 per cent found in this study is similar to that recently reported by Simonsen¹⁰ for a different sealant product after 10 years (57 per cent). (Our 10 year complete retention was 41 per cent but only involved a total of 66 teeth, many of which had been resealed.)

The findings of this field study allow several general conclusions of importance to the dental clinician. The long-term retention (10 years) of chemically-cured Delton sealant applied carefully by various dental personnel under field (non-clinical trial) conditions is excellent. Sealant loss is low and quite constant each year after the first two years. Annual recall is adequate to reseat lost sealant and, thus, maintain sealant integrity in order to prevent dental caries due to sealant loss.

As reported by several other researchers,⁴ rubber dam, which was rarely used in this study, is not necessary to achieve high sealant retention if other methods of moisture control are utilized.

These excellent results were achieved with teeth deemed to be particularly susceptible to dental caries in children at moderately high risk to decay. The extent

of sealing needed should be lower and the results even better in children at lower risk. Δ

Dr. Romcke is director, Dental Services, Department of Health and Social Services, Prince Edward Island.

Dr. Lewis is professor of Community Dentistry, Faculty of Dentistry, University of Toronto.

Drs. Maze and Vickerson are staff dentists, Department of Health and Social Services, Prince Edward Island.

Reprint requests to Dr. Romcke, Department of Health and Social Services, P.O. Box 2000, Charlottetown, P.E.I. C1A 7N8

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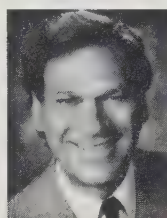
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Clinical evaluation of glass ionomer-silver cermet restorations in primary molars: One year results

T.W. Hung, BSc, DMD, MBA
Burnaby, B.C.
A.S. Richardson, DDS, MSc
Vancouver, B.C.

ABSTRACT

Using the half mouth technique, 33 silver amalgam (Dispersalloy) and 40 glass ionomer (Ketec silver) restorations were placed in the primary molars of children aged five to seven years. After one year, 73 restorations were evaluated. The amalgam restorations rated 90-100 per cent alpha for anatomic form and margins with no recurrent caries or fractures. The glass ionomer restorations rated 35 to 55 per cent alpha for anatomic form and margins with 40 per cent being replaced due to fracture of the material. Within the guidelines of this study, glass ionomer silver cermet was not a suitable material for the restoration of interproximal cavities in primary molars.

SOMMAIRE

Avec la technique de la demi-bouche, on a restauré des molaires temporaires chez des enfants âgés de cinq à sept ans: 33 avec un amalgame d'argent (Dispersalloy) et 40 avec du verre ionomère (Ketec silver). Un an plus tard, on a examiné ces 73 restaurations. Celles à l'amalgame ont obtenu de 90 à 100 pour cent à l'échelle alpha pour la forme anatomique et les bords sans fractures ni nouvelles caries. Les restaurations au verre ionomère ont obtenu 35 à 45 pour cent à l'échelle alpha pour la forme anatomique et les bords et 40 pour cent d'entre elles ont dû être remplacées à cause de fractures dans le matériau. D'après cette étude, l'amalgame de type argent-verre ionomère ne constitue pas un matériau convenable pour la restauration des caries proximales dans les molaires temporaires.

Introduction

Following their introduction in 1971,¹ glass ionomer cements have developed into a comprehensive dental material. They are being used in bases, liners, build-ups, sealants,

TABLE I

Criteria for Clinical Evaluation

Criteria	Margins	Anatomy
Alpha	Absence of a crevice into which the explorer penetrates.	No loss of material.
Bravo	Presence of a crevice into which the explorer penetrates.	Some loss of material without exposure of dentin.
Charlie	Explorer penetrates and core or dentin is exposed.	Loss of material and exposure of dentin.
Delta	Restoration is fractured or missing.	Restoration is fractured or missing.

cements and restorations.² They bond to tooth substance,^{3,4} are non-irritating to the pulp⁵ and release fluoride.⁶

"Miracle Mix" and Ketec silver have been introduced for the restoration of primary teeth. "Miracle Mix"⁷ is an admix of glass ionomer powder and silver amalgam alloy particles. Ketec silver⁸ is produced by high temperature sintering of glass powder and silver particles. It forms a hard cement when combined with a mixture of acrylic acid, maleic acid, tartaric acid and water. The purpose of this study was to evaluate the clinical effectiveness of restoring primary molar interproximal cavities with Ketec silver.

Materials and Method

Using the half mouth technique, 70 Class II and three Class I restorations were placed in the primary molars of 22 children ranging in age from five to seven years. Thirty-three restorations were silver amalgam (Dispersalloy capsules), and 40 were glass ionomer-silver cermet (Ketec silver). They were randomly distributed in the right or left side of the arches. The operator used rubber dam isolation for all cases and calcium hydroxide bases when indicated.

Standard Class I and Class II cavity preparations were made to receive both types of restorations. A contoured copper band matrix was used for Class II restora-

tions. The encapsulated amalgam was mechanically triturated, hand condensed and immediately carved to produce adequate anatomy.

The Ketec silver restorations were placed according to the manufacturer's instructions. A special applier provided by the manufacturer was used to inject the Ketec silver into the preparations. The restorations were gently condensed with a ball burnisher which was wiped with isopropyl alcohol to prevent the material from adhering to the instrument. Varnish was then placed over the restorations to prevent dehydration and moisture contamination. The restorations were allowed to harden for five minutes prior to removal of matrix bands and finishing. The hardened restorations were contoured with a No. 6 round bur on the occlusal surface in a slow-speed handpiece and a fine flame-shaped diamond bur in a high-speed handpiece was used to contour the marginal ridges and proximal margins in Class II restorations. After contouring, the restorations were checked with articulating paper to prevent any heavy occlusal contact. Post-operative radiographs and impressions were taken for all restorations.

Results

After one year, 33 amalgam and 40 glass-ionomer restorations were evaluated clinically by a single examiner who was not

the operator. Using a modified USPH technique, marginal adaptation (Table I), anatomic form and the presence or absence of caries were recorded. The amalgam restorations rated 90 to 100 per cent alpha without any recurrent caries or fractures. Sixteen of the 40 glass-ionomer restorations fractured (40 per cent) (Table II). All of the fractured restorations were Class II's (Fig. 1) and were subsequently replaced with silver amalgam. One of the 16 had some recurrent caries.

Discussion

The fracture of 16 of 40 Ketec silver restorations is unacceptable, especially when the amalgam restorations took less time to place and were 100 per cent successful. This fracture rate is higher than reported by Hunt⁹ and Croll et al.¹⁰ Hunt used a modified preparation where the marginal ridge was left intact. After a mean of 23 months, all 20 interproximal glass ionomer restorations were successful. Half-mouth controls were not used and more extensive clinical trials were recommended. Croll and his colleagues used glass ionomer-silver cermet restorations in 11 clinical situations, including Class I and Class II restorations, with traditional preparations. The results after 18 months were encouraging, although some fractures did occur and there were no control restorations.

Glass ionomers have several desirable properties, such as fluoride release and bonding to tooth substance. However, strength is not one of them. The addition of silver increases its "abrasive resistance"¹¹ but even the reinforced glass ionomers are only recommended for situations requiring cariostatic activity and moderate strength.¹² From the present study, it is concluded that glass ionomer cermet does not have the strength to successfully restore interproximal cavities in primary molars. The material may be useful in modified tunnel type¹³ preparations, where it is protected from high stress.¹ △

Dr. Hung is the Director of the Dental Public Health Program in Burnaby, B.C.

Dr. Richardson is a professor of restorative dentistry, Faculty of Dentistry, University of British Columbia, Vancouver, B.C.

Reprint requests to Dr. Richardson.

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TABLE II

Condition of Ketac silver and Dispersalloy restorations one year after replacement

	Criteria	Ketac silver		Dispersalloy	
		No	%	No	%
Margins	A	22	55	30	90
	B	2	5	3	10
	C				
	D	16	40		
	Total	40	100	33	100
Anatomy		No	%	No	%
	A	14	35	33	100
	B	10	25		
	C				
	D	16	40		
	Total	40	100	33	100

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Fig. 1. Fractured glass ionomer restoration after one year.

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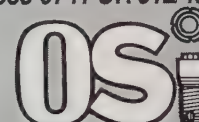
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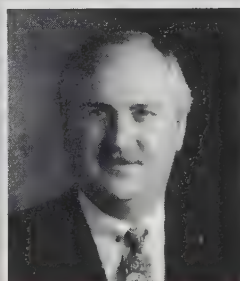
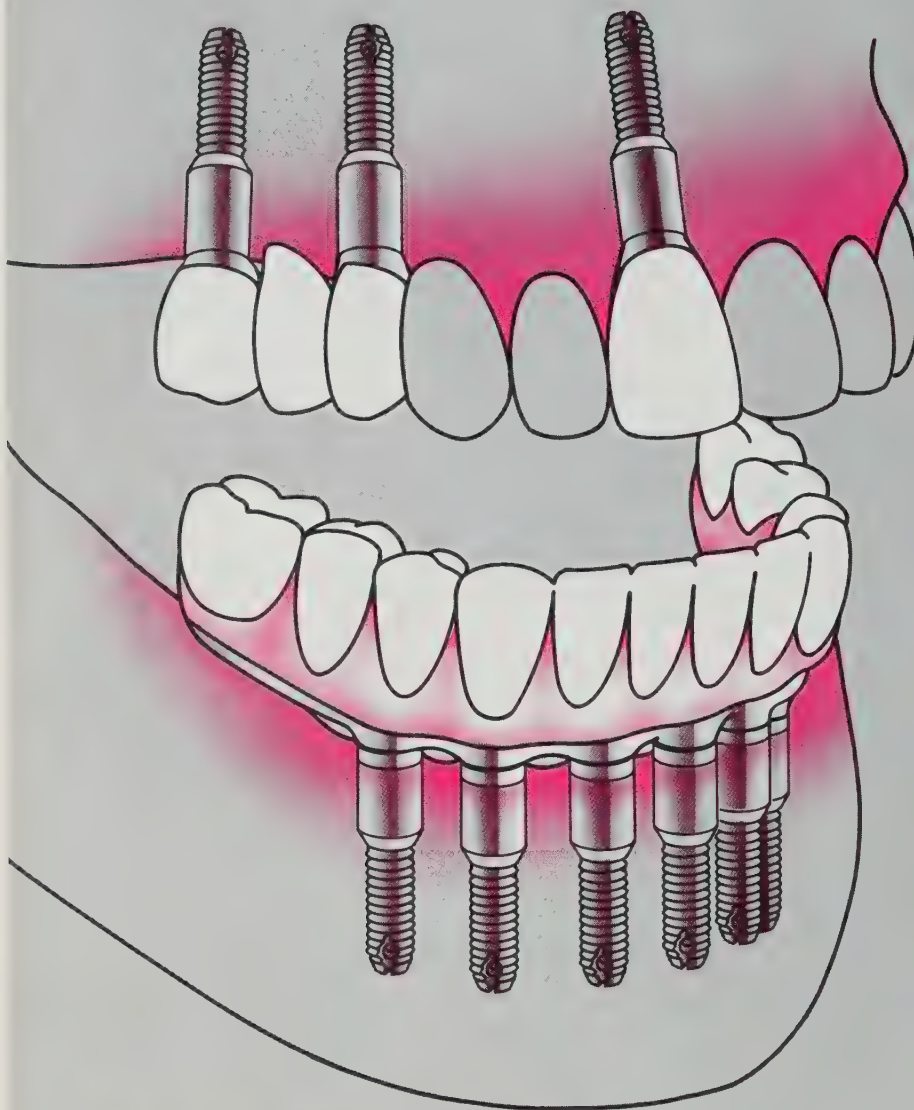
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A practical mouthstick for early intervention with quadriparetic patients

Bryan C. Budning, BSc, DDS
Mary Hall, BSc, OT(c)
Toronto

ABSTRACT

There are few commercially available mouthsticks with bite plates that are easy to use by quadriparetic patients. The purpose was to design a practical, economical single-arch mouthstick for use in early rehabilitation. The mouthpiece designed was constructed out of self-curing acrylic. It adapted well to the existing dentition, hence giving a stable base. The mouthstick was easily fabricated, using limited materials and resources, and resulted in an appliance which was comfortable, required minimal training and allowed for independent use by the patient.

SOMMAIRE

Sur le marché, il existe peu de pièces à bouche avec maquettes d'occlusion que les patients quadripares peuvent utiliser facilement. On a donc cherché à en fabriquer une qui serait pratique et économique avec un seul arc et qu'on utiliserait tôt en rééducation. Celle qu'on a conçue a été faite en acrylique autopolymérisante et s'adapte bien à la denture existante, donnant une base stable. Elle se fabrique facilement, demandant peu de ressources et de matériaux, et constitue un dispositif confortable qui exige un entraînement minimum et que le patient peut utiliser seul.

Introduction

Adults who have lost upper extremity motor function, either by neurological degeneration or trauma, often encounter problems with environmental control in the initial stages of recovery. These factors often have a significant impact on functional recovery. The rehabilitative process should commence as soon as medical stability is achieved. At this stage a means for interaction with the environment may be introduced. The traditional aid for this interaction is the mouthstick. The mouthstick acts as the one hand or device which

allows a person to control appliances such as radios, computers and typewriters, and has two components: (1) intraoral bite plate and (2) working end; together the entire appliance is known as a mouthstick.

Literature Review

In reviewing the literature, it appears that the three most common types of appliances are: conventional mouthsticks, maxillary-mandibular bite plate appliances, and the single-arch jaw support mouthsticks.

Conventional appliances are often difficult to employ in therapy because commercially available mouthsticks use standard intraoral sizes and shapes. These mouthsticks do not conform well to the existing dentition, resulting in an appliance which is unstable and requires excessive exertion of the facial muscles. One attempt to improve this situation is the use of thermoplastic material for the fabrication of the bite plate. This is a low temperature material typically used for the fabrication of custom splints. Once heated with hot water, this plastic is able to conform to any surface to which it is applied. Therapists utilize thermoplastics by cutting a tulip-shaped piece of this material for use as the bite plate, which is then heated and inserted into the patient's mouth. The patient is then instructed to bite down, resulting in an imprint of the dentition. A working end is then attached onto the thermoplastic bite plate. There are, however, shortcomings to this technique:

1. The material is easily deformed (inaccurate impression).
2. Despite the fact that the material is relatively easy to manipulate, multiple adjustments are often necessary to compensate for the ease with which the material deforms.
3. This is a labour-intensive technique requiring professional application, resulting in an inefficient technique from a cost-effective point of view.

Another device is the complex combined maxillary and mandibular bite-plate type appliance. These types of appliances

utilize both jaws for their support and jointly support the working end.^{1,2} This mouthstick is difficult to fit accurately and due to its complexity results in higher fabrication costs. Furthermore, in cases where bite plates include total enclosure of dentition, oral manipulation is more difficult and patient acceptance may be compromised.

The final form of bite plate to examine is the single-arch, jaw supported appliance. This appliance is best supported on only the maxillary jaw. This custom bite plate facilitates intraoral stability and reduces muscular exertion, allowing the patient more effective control. Other researchers³⁻⁹ have used single arch appliances. However, the mouthsticks used in these cases were more complex to fabricate, requiring more than a single professional (dentist and occupational therapist) to assemble. This is not a problem in an institution, where a sufficient number of patients requiring this form of prosthesis could support the many professionals required to render this service. It was our hope to develop a simplified technique which could more readily be employed in a less specialized setting.

Objectives

In an attempt to address this problem in acute care intervention, a practical device was designed which did not require an elaborate technique to construct. In designing this appliance the following objectives were met:

1. The appliance was:
 - a) custom fit
 - b) simple to fabricate
 - c) light weight
 - d) comfortable
 - e) compatible with the dentition
 - f) stable
 - g) versatile and adaptable
 - h) cost effective
2. The patient was able to, with the use of a docking station, use the aid independently.
3. The appliance was fabricated early on during the patient's recovery period, i.e. post-intensive care.

Materials

1. Laminated length of wood doweling (12'').
2. Standard alginate impression of the patient's teeth: alginate, rubber bowl, spatula and alginate tray.
3. Self curing orthodontic acrylic.

Technique

Using a standard metal stock tray, an alginate impression was taken. From the impression a positive plaster model was fabricated utilizing the impression. A separating medium was then painted on the cast to allow later removal of the bite plate. The material used to fabricate the bite plate was cold-cure orthodontic acrylic. The acrylic covered the palate, the incisal and occlusal surfaces of the dentition and was extended to the junction of the hard and soft palate. The acrylic was then cured under heat and pressure conditions. Following final setting of the acrylic, the bite plate was separated from the model, trimmed and polished, leaving approximately a 5 mm border on the buccal surface of the teeth. The remaining labial overlap served as the retention necessary for this appliance to remain in the mouth.

The wood doweling (to be used as the working end) was laminated and trimmed at one end in order to achieve a flat surface and reduce the thickness to approximately 3 mm. This end was then aligned to run perpendicular from the central incisors outward with minimal impedance to the palate. Using cold cure acrylic, the dowel was then fixated permanently in position. The acrylic was extended 5 cm from the junction of the bite plate and dowel forward to allow for improved water-proofing. (Fig. 1) The excess was then trimmed and polished to present a smooth surface to the oral tissues.

Application

The mouthstick allowed for easy insertion and removal due to the fact that there were no clasps. Patients were instructed that in order to insert the mouthstick, all that is necessary is to bite gently, closing the teeth firmly until the appliance seats fully. The tongue may be used to aid in the location of the bite plate.

To remove the device, patients were taught to exert a sucking motion in the roof of the mouth and loosen the bite plate by downward pressure of the upper lips. Once the appliance was loosened in the mouth the patient could then conveniently snap the appliance into a docking station.

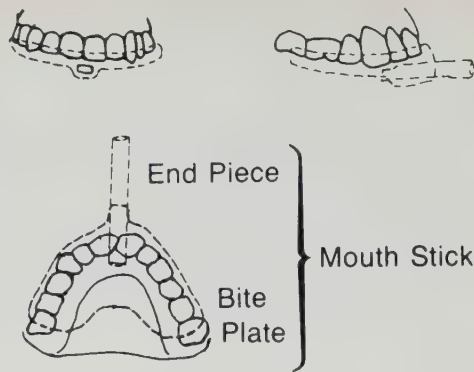


Fig. 1. Showing acrylic extended 5 cm. from junction of bite plate.

Because the device is made of dimensionally stable plastic, care is simplified as patients may clean the device using hot water/toothpaste and toothbrush, or commercially available denture cleaners.

Clinical Findings

This apparatus was developed as a result of a particular clinical problem: that of a C4-5 quadriplegic having inadequate mobility and oral dexterity to manipulate commercially available or thermoplastic mouthsticks. Although this appliance has only been used in a single application to date, all of the previously outlined objectives have been met. The other advantages noted were: decreased anxiety, i.e. fear of swallowing the bite plate, no negative effects on the dentition and cost effectiveness, i.e., commercial lab costs for bite plate component fabrication ranged from \$70 to \$150.

The difficulties encountered were related to impaired mobility and discomfort in the patient's neck which restricted the extent of use. However, despite the physical limitations, this patient was better able to adapt to this mouthstick as compared to standard stock mouthsticks used by him in the past. Subsequently, since the initial trial, two other patients have been fitted and successfully trained to use this mouthstick.

Summary

In conclusion, it is felt that the objectives outlined initially were met by this bite plate. Although this form of service is targeting a very small group, it should be considered that an effective mouthstick is an integral part of independent living. Any improvements which can enhance the ability to manipulate the environment can only add to quality of life. To achieve the best results, a customized service is

imperative. As a result of this case study, this device appeared to be practical and cost effective. In view of the selected population, these appliances may be utilized for long periods of time; therefore, more studies should be done regarding the long-term effects on dentition and oral tissues. Δ

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Dr. Budning is a private practitioner in Toronto, Ontario.

Ms. Mary Hall is an occupational therapist working at St. Michael's Hospital, Toronto, Ontario.

Reprint requests to: Dr. Bryan C. Budning, 536 Church Street, Toronto, Ontario, M4Y 2E1 (416) 923-3325.

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ZOVIRAX Ointment 5% (4 g and 15 g tubes)

INDICATIONS AND CLINICAL USE: ZOVIRAX Ointment 5% is indicated for the management of initial episodes of genital herpes simplex infections. It is also indicated in the management of nonlife-threatening cutaneous herpes simplex virus infections in immunocompromised patients. The prophylactic use of this preparation has not been established.

In genital herpes, appropriate examinations should be performed to rule out other sexually transmitted diseases.

These indications are based on the results of a number of double-blind, placebo-controlled studies which examined changes in virus excretion, healing of lesions and relief of pain. Because of the wide biological variations inherent in herpes simplex infections, the following summary is presented merely to illustrate the spectrum of responses observed to date. As in the treatment of any infectious disease, the best response may be expected when therapy is begun at the earliest possible moment.

In immunocompromised patients, 93% were virus negative after 5 days of topical ZOVIRAX therapy, whereas only 35% of placebo recipients were virus negative at the same time.

In patients with herpes labialis, there was a significantly greater decrease in the amount of virus excreted after one day of therapy in those receiving ZOVIRAX within 8 hours of the onset of cold sores when compared to identically treated placebo patients.

Because complete re-epithelialization of herpes-disrupted integument necessitates recruitment of several complex repair mechanisms, the physician should be aware that the disappearance of visible lesions is somewhat variable and will occur later than the cessation of virus shedding. All immunocompromised patients who received topical ZOVIRAX had healed their lesions 23 days after the initiation of a 10-day course of therapy. 75% of placebo patients had healed lesions at that point. Some placebo patients continued to have visible lesions for more than 30 days.

Pain associated with herpes infections is highly variable in frequency and intensity. One hundred percent of the ZOVIRAX-treated immunocompromised patients were pain-free by day 23 versus 70% of placebo-treated patients.

Whereas cutaneous lesions associated with herpes simplex infections are often pathognomonic, Tzanck smears prepared from lesion exudate or scrapings may assist in the diagnosis. Positive cultures for herpes simplex virus offer the only absolute means for confirmation of the diagnosis.

CONTRAINDICATIONS: ZOVIRAX Ointment 5% is contraindicated for patients who develop hypersensitivity or chemical intolerance to any of the components of the formulation, such as polyethylene-glycol.

WARNINGS: ZOVIRAX Ointment 5% is intended for topical use only and should not be used in the eye or on mucous membranes.

PRECAUTIONS: The recommended dosage, frequency of application and duration of treatment of ZOVIRAX Ointment 5% should not be exceeded.

It is not known whether acyclovir is excreted in human milk.

Because many drugs are excreted in human milk, caution should be exercised when ZOVIRAX is administered to a nursing mother.

ZOVIRAX Ointment 5% should be used during pregnancy only if the physician feels the benefit will outweigh the possible harm to the fetus.

Safety of use of ZOVIRAX Ointment 5% in children has not been established.

There exist no data, at this time, which demonstrate that the use of ZOVIRAX Ointment 5% will prevent transmission of infection to other persons.

Since most cutaneous herpes simplex virus infections result from reactivation of latent virus, it is unlikely that ZOVIRAX Ointment 5% will prevent recurrence of infections when applied in the absence of signs and symptoms. ZOVIRAX Ointment 5% should not be applied in an attempt to prevent recurrences; application should commence only at the earliest prodromal sign of disease onset.

Although clinically significant viral resistance associated with the use of ZOVIRAX Ointment 5% has not been observed, this possibility exists.

ADVERSE REACTIONS: Because ulcerated genital lesions are characteristically tender and sensitive to any contact or manipulation, patients may experience discomfort upon application of ointment. In the controlled clinical trials, mild pain (including transient burning and stinging) was reported by 103 (28.3%) of 364 patients treated with ZOVIRAX Ointment 5% and by 115 (31.1%) of 370 patients treated with placebo; treatment was discontinued in 2 of these patients. Other local reactions among acyclovir-treated patients included pruritus in 15 (4.1%), rash in 1 (0.3%) and vulvitis in 1 (0.3%). Among the placebo-treated patients, pruritus was reported by 17 (4.6%) and rash by 1 (0.3%).

In all studies, there was no significant difference between the drug and placebo group in the rate or type of reported adverse reactions.

SYMPTOMS AND TREATMENT OF OVERDOSAGE: Overdosage by topical application of ZOVIRAX Ointment 5% is unlikely because of limited transcutaneous absorption.

DOSAGE AND ADMINISTRATION: Apply ZOVIRAX Ointment 5% liberally to the affected area 4 to 6 times daily for up to 10 days. A sufficient quantity of ointment should be applied to adequately cover all lesions. A finger cot or rubber glove should be used while applying ZOVIRAX in order to prevent

- (1) autoinoculation of other body sites or
- (2) transmission of infection to other persons.

Therapy should be initiated as early as possible following onset of signs and symptoms.

AVAILABILITY: ZOVIRAX Ointment 5% is available in tubes of 4 g and 15 g. Each gram contains 50 mg acyclovir in a polyethylene-glycol base. ZOVIRAX Ointment 5% is for topical administration.

Product Monograph available on request.

Reference:

1. Whitley RJ, Levin M, Barton N, et al: Infections caused by herpes simplex virus in the immunocompromised host: Natural history and topical acyclovir therapy. *J Infect Dis* 1984;150:323-329.

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TYLENOL*

acetaminophen

A LOGICAL FIRST CHOICE

ACTIONS:

Acetaminophen is an analgesic and antipyretic.

INDICATIONS:

TYLENOL* acetaminophen is indicated for the relief of pain and fever. Also as an analgesic/antipyretic in the symptomatic treatment of colds.

CONTRAINDICATIONS:

Hypersensitivity to acetaminophen.

ADVERSE EFFECTS:

In contrast to salicylates, gastrointestinal irritation rarely occurs with acetaminophen. If a rare hypersensitivity reaction occurs, discontinue the drug. Hypersensitivity is manifested by rash or urticaria. Regular use of acetaminophen has shown to produce a slight increase in prothrombin time in patients receiving oral anticoagulants, but the clinical significance of this effect is not clear.

PRECAUTIONS AND TREATMENT OF OVERDOSE:

The majority of patients who have ingested an overdose large enough to cause hepatic toxicity have early symptoms. However, since there are exceptions, in cases of suspected acetaminophen overdose, begin specific antidotal therapy as soon as possible. Maintain supportive treatment throughout management of overdose as indicated by the results of acetaminophen plasma levels, liver function tests and other clinical laboratory tests.

N-acetylcysteine as an antidote for acetaminophen overdose is recommended and is available in oral and parenteral dosage forms. More detailed information on the treatment of acetaminophen overdose with N-acetylcysteine is available from the manufacturers of its oral and parenteral dosage forms, or contact your nearest Poison Control/Information Centre.

DOSAGE:

Adults

650 to 1000 mg every 4 to 6 hours, not to exceed 4000 mg in 24 hours.

Children

Based on Weight

10-15 mg/kg every 4 to 6 hours, not to exceed 65 mg/kg in 24 hours.

SUPPLIED:

TYLENOL* Drops: Each 1.0 mL contains 80 mg acetaminophen in an orange-coloured, non-alcoholic liquid vehicle with a new improved, fruit-flavoured taste. Available in bottles containing 15 mL† and 24 mL† and a calibrated dropper.

‡ Sweetened with sodium cyclamate and sorbitol.

TYLENOL* Elixir: Each 5 mL contains 160 mg acetaminophen in a cherry-flavoured, non-alcoholic red liquid vehicle. Available in bottles containing 100 mL† and 500 mL.

TYLENOL* Chewable Tablets 80 mg: Each round pink tablet, scored one side and engraved "TYLENOL" the other side, contains 80 mg acetaminophen. Available in bottles of 24† tablets.

TYLENOL* Junior Strength Caplets 160 mg: Each white caplet, scored on one side and engraved "TYLENOL 160" the other side, contains 160 mg acetaminophen. Available in blister packs of 20†.

TYLENOL* Caplets 325 mg: Each white caplet, scored on one side and engraved "TYLENOL" the other side, contains 325 mg acetaminophen. Available in bottles of 24†, 50† and 100† caplets.

TYLENOL* Tablets 325 mg: Each round, white tablet, scored on one side and engraved "TYLENOL" the other side, contains 325 mg acetaminophen. Available in bottles of 24†, 50†, 100 and 500 tablets.

TYLENOL* Caplets 500 mg: Each white caplet engraved "TYLENOL" on one side and "500" the other side, contains 500 mg acetaminophen. Available in bottles of 24†, 50 and 100† caplets.

TYLENOL* Tablets 500 mg: Each round, white tablet, engraved "TYLENOL" one side and "500" the other side contains 500 mg acetaminophen. Available in bottles of 30†, 50 and 100† tablets.

† container provided with a child-resistant closure.

References

1. Georgetown Symposium on Analgesics: *Arch. Intern. Med* 141:273-406, 1981.
2. Meredith, T.J. and Goulding, R.: *Postgrad. Med. J.* 56:459, 1980.
3. American Pharmaceutical Association: *Handbook of Non-prescription Drugs*, ed. 6, Washington, D.C., American Pharmaceutical Association, 1979, p. 129.
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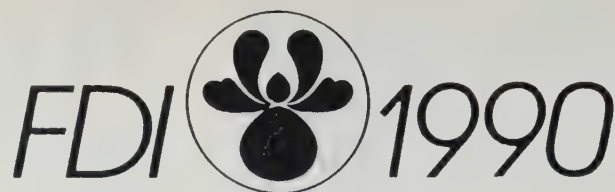
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Singapore / Singapour ■ 8-14 September / Septembre, 1990

FÉDÉRATION DENTAIRE INTERNATIONALE MEMBERSHIP

In September, 1990, the FDI World Congress will take place in Singapore. Registrants to the congress must be supporting members of the Federation. *To be eligible for supporting membership, Canadian dentists must be members of the Canadian Dental Association.*

Your membership fee is your contribution in support of FDI and its efforts to promote improved dental health on a worldwide basis. The subscription fee is \$40 or, in combination with a subscription to the International Dental Journal, \$98. All FDI member fees collected by CDA are forwarded to FDI's headquarters in London, England. The fee includes a small administrative fee levied by CDA to cover administrative costs and foreign exchange.

Please fill in, clip out and forward the bottom of this page to us (or forward the necessary information in a letter) and we will register you as a FDI supporter.

ADHÉSION À LA FÉDÉRATION DENTAIRE INTERNATIONALE

En septembre 1990, le Congrès mondial de la FDI se tiendra à Singapour. Les personnes désireuses d'y participer doivent être membres de soutien de cette Fédération. Pour être admissibles comme membres de soutien, les dentistes canadiens doivent être membres de l'Association dentaire canadienne.

Par votre cotisation, vous appuyez la FDI et ses efforts pour améliorer la santé dentaire à l'échelle mondiale. Les frais de cotisation sont de 40 \$ ou de 98 \$ si l'on désire en plus s'abonner au Journal dentaire international. Les frais d'envoi en devises américaines, ainsi que les frais d'administration encourus par l'ADC, sont couverts par ce montant.

Nous vous invitons donc à remplir, détacher et nous faire parvenir le formulaire ci-dessous (ou une lettre indiquant l'information requise) et nous vous compterons parmi les membres de soutien de la FDI.

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Please register me as a supporting member of the Fédération Dentaire Internationale. I understand that for:

- ☐ \$40 – I will be registered as a supporting member of FDI and will receive a membership card and the Quarterly FDI newsletter.
- ☐ \$98 – I will be registered as a supporting member of FDI and will receive a membership card, the Quarterly FDI newsletter and a subscription to the International Dental Journal.



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Announcements

April/Avril 1990

April 1-6: VIth World Congress on Pain in Adelaide, Australia. For information: International Association for the Study of Pain, 909 NE 43rd St, Suite 306, Seattle, WA 98105-6020 USA. (206) 547-6409.

April 6-7: Volitional Practice: An effective Way of Serving Others in an Age of Elective Care at the Holiday Inn, Winnipeg, sponsored by The Winnipeg Dental Society. For more information, contact: The Winnipeg Dental Society, 202-219 Kennedy Street, Winnipeg, MAN R3C 1S8.

April 22-26: 44th Annual Meeting of the American Academy of Oral Pathology at the Princess Resort, San Diego, CA. For further information, contact: Dr. Dean K. White, Secretary-Treasurer, American Academy of Oral Pathology, College of Dentistry, University of Kentucky, Lexington, KY 40536-0084.

April 22-27: 2nd International Dental Congress sponsored by Dental Volunteers for Israel. For information, contact: Aufgang Travel, 3528 Bathurst St, Toronto, Ont M6A 2O6. Phone (416) 789-7117.

April 25-29: American Association of Endodontists. For more information, contact: Ms. Irma S. Kudo, 211 E Chicago Ave, Suite 1501, Chicago, IL 60611, USA.

May/Mai 1990

May: American Society for Geriatric Dentistry Contact: Dr. Paul Van Ostenberg, 211 E Chicago Ave, Suite 1616, Chicago, IL 60611, USA.

May: American Society of Hospital Dentists Contact: Dr. Paul Van Ostenberg, 211 E Chicago Ave, Suite 1616, Chicago, IL 60611, USA.

May 3-5: ODA Annual Spring Meeting to be held at the Metro Toronto Convention Centre is looking for clinicians. All members of the dental team are invited to participate and share their expertise. For an application form, please contact: Diana Thorneycroft, ODA, 234 St. George St, Toronto, ON M5R 2P1.

May 4-6: American Dental Society of Anesthesiology in Orlando, FL. Details: Mr. Peter C. Goulding, 211 E Chicago Ave, Suite 948, Chicago, IL 60611, USA.

May 4-6: British Dental Surgery Assistants Jubilee Conference in Solihull. For information, contact: DSA House, 29 London St, Fleetwood FY7 6JY, England. Tel: 039-17-78631.

May 5: Class of 8TO: 10th Year Reunion, University of Toronto at the Skydome during the ODA Convention. Contact: Tom Harle (416) 849-3571.

May 16-19: International Dental Congress of the British Dental Association at Barbican Centre in London. Contact: British Dental Association, 64 Wimpole St, London W1M 8AL, England or tel 01 935 0875.

May 16-19: 3rd North Sea Conference on Periodontology in Maastricht, The Netherlands sponsored by the British, Dutch and Scandinavian Societies of Periodontology. For more information, contact: Dutch Society of Periodontology, PO Box 24, 9649 ZG Muntendam, The Netherlands.

May 17-19: Congrès de la Société Suisse d'Odontostomatologie SSO in Montreux, Switzerland. Contact: Dr. Pierre Spahn, 51 av du Casino, CH-1820 Montreux, Switzerland.

May 20-24: Les Journées dentaires du Québec in Montréal. Contact: Chantal Bally, 625 boul René-Lévesque ouest, Montréal, Qué H3J 1Y2.

May 26-29: American Academy of Pediatric Dentistry in Boston. Contact: Dr. John A. Bogert, 211 E Chicago Ave, Suite 1306, Chicago, IL 60611, USA.

May 28-31: The Impact of Lasers on Dental Science in Paris, France. Contact: Lasers 1990 Scientific Secretariat, Faculté de Chirurgie dentaire, 1 rue M. Arnoux, F-92120 Montrouge, France.

June/Juin 1990

June 2-4: XI^{èmes} Journées françaises de Parodontologie in Cannes, France. Contact: Dr. Catherine Mattout, 21 rue Sylvabelle, 13006 Marseille, France.

June 6-13: American Dental Hygienists Association in San Antonio, TX. Contact: Ms. Kathy Gallagher, 444 N Michigan Ave, Suite 3400, Alexandria, VA 22305, USA.

June 10-13: Alberta Dental Association Convention in Kananaskis. "Start the 90's with a Kananaskis High". For registration, contact: Dr. R.T. Huff, 131 Woodvalley Dr SW, Calgary, ALTA T2W 5Y2.

June 14-15: Fundamentals of Orofacial Myology with Marvin L. Hanson in Ottawa. Contact: Barbara Okun, Dept of Speech and Language Disorders, Ottawa Civic Hospital, 1053 Carling Ave, Ottawa, Ont K1Y 4E9. Tel: (613) 761-4722.

June 14-16: 9th Symposium on Sports Dentistry at the Cleveland Clinic. For information, contact: Dr. Ed Whitman, 3609 Par E, #201N, Cleveland, OH 44122. Phone (216) 831-2991.

June 18-24: National Association of Dental Laboratories in San Diego. Contact: Ms. Audrey Calomino, 3801 Mt Vernon Ave, Alexandria, VA 22305, USA.

June 19-22: 96th Annual Meeting of the American Dental Society of Europe in St. Andrews, Scotland. Contact: Dr. Clive Debenham, American Dental Society of Europe, 1 Harley St, London W1N 1DA, England.

June 25-29: 81st Annual Conference of the Canadian Public Health Association in Toronto. Contact: CPHA, 1565 Carling Ave, Suite 400, Ottawa, Ont K1Z 8R1. Tel: (613) 725-3769.

June 27-July 1: Dental Manufacturers of American, Inc. Contact: Ms. Kathleen A. LeMar, 1118 Land Title Bldg, Philadelphia, PA 19110, USA.

June 28-30: Florida National Dental Congress. For more information, contact: Betty Waggner, Director, Florida National Dental Congress, 3021 Swann Ave, Tampa, FL 33609. Tel: (813) 877-7597.

June 28-30: Sri Lanka Dental Association International Congress at the Hotel Hilton in Colombo, Sri Lanka. For information, contact: Secretary, Organizing Committee, Sri Lanka Dental Association, Professional Centre, 275/75 Baudhaloka Mawatha, Colombo 07, Sri Lanka.

June 28-30: 5th Annual Society for Oral Oncology Conference in Orlando, Florida. For more information, contact: Dr. Ronald A. Baughman, Chairman, Dept of Oral Medicine, Univ of Florida College of Dentistry, Box J 414, Gainesville, FL 32610. (904) 392-2508.

June 30-July 7: Bermuda Dental Association Convention For travel and registration information, contact: Dr. Bob Brandon, 85 Lonsdale Dr, London, ONT N6G 1T4 (519) 657-3368.

July/Juillet 1990

July 2-5: 5th Biennial Congress of the International Association of Oral Pathologists in Tokyo, Japan. Contact: Dr. Tetsuo Ishiki, Niigata University, 2 Gakko-Cho, Niigata #951, Japan.

July 6-7: International College of Dentists, European Section in London. Contact: Dr. B.D. Glynn, 35 Devonshire Pl, London, W1N 1PE, England.

July 11-14: 37th Annual Congress of the European Organization for Caries Research in Ljubljana, Yugoslavia. For details, contact: Dr. V. Vrbic, University klinicy Ctr. Ljubljana, Mrvatski TRG 6, Y-61000, Ljubljana, Yugoslavia.

July 13-19: Academy of General Dentistry Contact: Ms. Debbie Jepsen, 211 E Chicago Ave, Suite 1200, Chicago, IL 60611, USA.

August/Août 1990

August: Annual Congress of International Association of Dental Students in Puerto Rico. Contact: The Secretary, International Association of Dental Students, c/o Fédération dentaire internationale, 64 Wimpole St, London, W1M 8AL, England.

August 24-28: 15th Biennial Conference of the New Zealand Dental Association in Dunedin, New Zealand. For information, contact: Conference Secretary, PO Box 647, Dunedin, New Zealand.

August 25-28: Congress of the Association of Dental Education in Europe in Budapest, Hungary. For details, contact: Prof. Jolan Banoczy, Mikszath K ter 5, H-1088 Budapest, Hungary.

September/Septembre 1990

September: Annual Conference of the European Prosthodontic Association/Dutch Society of Prosthetic Dentistry in the Netherlands. Contact: Prof H. de Koomen, ACTA, Postbus 7161, 1007 MC Amsterdam, The Netherlands.

September 2-6: 10th Congress of the International Association of Dentistry for the Handicapped in Nice. Contact: Prof J.R. Jasmin, Université de Nice, UFR Odontologie, Faculté de Chirurgie dentaire, av Joseph Vallot, Parc Valrose, 06034 Nice, France.

September 5-7: 7th Biennial Congress of the International Academy of Gnathology (Asian Section) in Singapore. Contact: The Secretariat, IAG-7th Annual Congress, Communication International Assoc Pte Ltd, 450 Alexandra Rd, #10-00 Inchaape House, Singapore 0511

September 6-7: Federation of Prosthodontic Organizations Contact: Mr. Peter C. Goulding, 211 E Chicago Ave, Suite 948, Chicago, IL 60611, USA.

September 8-14: 78th Annual World Dental Congress in Singapore. Contact: Fédération dentaire internationale, 64 Wimpole St, London W1M 8AL, England.

September 10-14: 10th Congress of the European Association for Cranio-Maxillo-facial Surgery in Brussels. Contact: Mrs. H. van Leemputten, rue Joseph Stallaert 28, B-1180 Brussels, Belgium.

September 12-15: dentchnica 90 and the 10th International Congress of Dental Technicians in Cologne, Germany. For information, write: Verband Deutscher Zahntechniker-Innugen, Ilkenhansstraße 6, D-6000 Frankfurt 50, West Germany.

September 13-16: American Academy of Orthodontics for the General Practitioner in Stevens Point, WI. Contact: Ms. Janes Taylor, 3953 N 76th, Milwaukee, WI 53222, USA.

September 17-20: 4th Meeting of International Academy of Periodontology in Istanbul. Contact: Mr. M. Midda, University of Bristol, Dental School and Hospital, Lower Maudlin St, Bristol BS1 2LY, England.

September 27-29: 41st Annual New Orleans Dental Conference Contact: Ms. Norma Ward, New Orleans Dental Conference, Suite 119, 3101 W Napoleon Ave, Metairie, LA 70001, USA.

September 27-30: 108th Annual Session of the American Dental Trade Association in Hilton Head, South Carolina. Contact: Mr. Nikolaj Petrovic, American Dental Trade Association, 4222 King St, Alexandria, VA 22302, USA.

October/Octobre 1990

October 1-5: Annual Conference of the Canadian Society of Forensic Science in Ottawa. Deadline for scientific papers is June 1/90. For further information, please contact: Canadian Society of Forensic Science, Suite 215, 2660 Southvale Cres, Ottawa, Ont K1B 4W5. Tel: (613) 731-2096.

October 7-8: American Board of Oral & Maxillofacial Radiology 1990 Certifying Examination in Boston, MA. Applications must be submitted by March 1, 1990. For further information or application forms, please contact: Dr. Axel Ruprecht, University of Iowa, College of Dentistry, DSB S-356, Iowa City, IA 52242-0101.

October 10-13: 53rd Annual Session of the American Association of Public Health Dentistry Deadline for abstracts April 1/90. Send abstracts to: Alice M. Horowitz, 6307 Herkos Crt, Bethesda, MD 20817 USA.

October 13-16: 131st Annual Session of the American Dental Association in Boston. Contact: Office of International Affairs, American Dental Association, 211 E. Chicago Ave, Chicago, IL 60611, USA.

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sional building, city and mountain view. Six operatories. Opportunity for experienced practitioner with associate or two graduates to take over well functioning and profitable office. Owner wishes retirement but he and associate can stay on for smooth transition. Call evenings: (604) 922-0657.

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ALBERTA—Edmonton: Practice for Sale. Excellent opportunity for established dentists or new graduates. Modern, 5-operator general practice located in downtown professional building. Owner returning to school. Phone (403) 465-5035 or 467-6887 after 6 pm.

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ONTARIO—Suburban Toronto: Periodontal practice for sale. Excellent opportunity for growth. Reply in confidence to CDA Box 2475.

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Associateships Available

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NORTHWEST TERRITORIES: Position as associate in modern practice in Iqaluit. Because this involves travel to communities, post-graduate experience preferable. Only enthusiastic, adventurous applicants willing to stay at least two years need apply. Reply to Dr. Hassan Adam, Adam Dental Clinic, P.O. Box 1118, Yellowknife, NWT X1A 2N8.

BRITISH COLUMBIA—Abbotsford: ASSOCIATE REQUIRED Associateship with view to partnership available to career minded dentist. Well-established, busy general practice is located one hour

east of downtown Vancouver. Call: Dr. A. Quadir (604) 852-8487.

BRITISH COLUMBIA—Chilliwack: Associateship with view to partnership available to dentist committed to continuing education and excellence in patient care. Busy practice located one hour east of Vancouver in beautiful Fraser Valley. Area offers skiing, hiking, boating and mild climate. Present associate returning to school after having busy practice for 3½ years. For further information, contact Dr. Michael Thomas, 102-45625 Hodgins Ave, Chilliwack BC V2P 1P2 or call (604) 792-0021 (office) or (604) 795-9818 (residence).

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UNIVERSITY OF WESTERN ONTARIO: Tenure position available, Division of Removable Prosthodontics, July 1, 1991. Rank and duration of initial appointment dependent on candidate's qualifications and expertise. DDS (or equivalent) degree, graduate training in restorative dentistry, research and teaching experience required. The Faculty is developing a patient-centred teaching program and teaching ability in operative dentistry and/or fixed prosthodontics (in addition to removable) would be an advantage. Duties include teaching and research. Inquiries and applications, which should include a curriculum vitae and names of three referees, should be sent to: Dean, Faculty of Dentistry, The University of Western Ontario, London, ON N6A 5C1. Position subject to budget approval. In accordance with Canadian immigration requirements, ad directed to Canadian citizens and permanent residents of Canada. The University of Western Ontario is an Equal Opportunity Employer. Applications accepted until position filled.

AUSTRALIA—Stawell: Busy dental practice for sale in Western Victorian town of Stawell. Wine growing region close to Grampians National Park. Practice is still growing, and there is great opportunity for further expansion, with room for 2 more surgeries. Sale is regrettably necessary due to family reasons. Price AUS \$150,000 negotiable. For further details apply to Dr. Charles Reid, 52 Main St., Stawell, Victoria 3380, Australia, or telephone (53) 524792.

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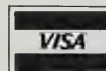


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The Journal of the Canadian Dental Association welcomes the submission of previously unpublished articles, critical reviews of material on advances in dentistry and clinical reports for consideration for publication. Material is accepted for publication on the understanding that it is submitted solely to the Journal and that it has not previously been submitted elsewhere.

Scientific Articles:

are contributions dealing with research, diagnosis and treatment of dental disease, studies in education, clinical and laboratory research and other detailed investigations pertinent to dentistry and related fields. The text should not exceed 3,000 to 4,000 words (approximately four Journal pages).

Clinical Reports:

are brief (up to 2,000 words) reports, case histories and clinical observations. References should be limited and minimum number of illustrations used.

Opinions:

fully documented (800 words or less) are welcome to be reviewed for publication at the discretion of the editor.

Manuscript Requirements:

Submit three (3) copies (original and 2 duplicates) to the Editor, Journal of the Canadian Dental Association, 1815 Alta Vista Drive, Ottawa, Ontario K1G 3Y6. All graphs, photographs, charts and tables must also be submitted in triplicate. Authors are also requested to submit their article on computer disk if available. IBM compatible material is preferred. For more details, please contact the editorial staff.

A covering letter designating one author as correspondent with a full address and telephone number must accompany the article. All scientific articles are subject to review by selected consultant referees. Acceptance or rejection of an article for publication is based on the referees' reports plus editorial consideration.

The editor reserves the right to edit manuscripts for stylistic consistency, clarity and conciseness. The author named as correspondent will receive a copy of the edited manuscript for checking prior to publication. Authors will also be able to proofread their article at the galley stage; however, **no changes** other than typographical corrections may be made. If the author does not respond

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Article Titles:

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stating the purpose, results and conclusion of the work must accompany all manuscripts. All abstracts will be translated into French (or English as the case may be). Abstracts should be approximately one typewritten page (250 words in length).

Authors Affiliations:

The authors' names, degrees, and university affiliations must be provided. Authors are responsible to disclose to the Editor any financial interests they may have in products mentioned in their article.

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1. Hechter, F.J., Symmetry and dental arch form of orthodontically treated patients. *JCDA* 44:173-184, 1978.

For books give the author's name, book title, location and name of publisher and year of publication.

2. Kilpatrick, H.C. *Work simplification in dentistry*, ed. 2, Philadelphia, Saunders, 1964.

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Manuscripts that do not conform to the above requirements will be returned to the author! Please read all instructions thoroughly.

Communications Are Decaying

Not long ago a disconcerting fact came to my attention. Managing a hospital-based referral practice entails forwarding consultations to physicians explaining the relationship between certain systemic diseases and oral manifestations, suggesting appropriate medical investigations, and requesting follow-up reports. A recent review of more than one hundred such cases revealed that of the five physicians who responded, only two did so in a manner which could be included in our files. This lack of inter-professional communications creates inefficiencies in an already overburdened health care system.

Such communication woes are not the sole property of the medical profession. In an attempt to communicate with a colleague whose patient had sustained a severe dento-alveolar fracture, I was informed by a machine, "Hi, we are on holiday. Don't leave any messages. Have a nice weekend." I object to being told on a Tuesday morning to have a "nice weekend." Had I been a patient I would have been concerned at not knowing when the vacation ended or who would care for emergencies. Unfortunately in this case, the emergency room physician on calling this dentist received the same message. A communication which did nothing to enhance our image with medical colleagues.

Recently I have become aware of a communication malaise descending upon the high ranks of our profession. Letters which I have sent to various professional associations have failed to elicit a response. Perhaps the contents were deemed to be unimportant or inappropriate, but in such organizations where the ethic of volunteerism is paramount our leaders must never consider such communications to be insignificant and not worthy of a simple courteous personal acknowledgement.

The August 1989 edition of this Journal contained a colourful pull-out brochure which exclaims, "Are you communicating effectively with your patients?" A more appropriate question would be "Are we communicating effectively with each other, and if not, why not?"

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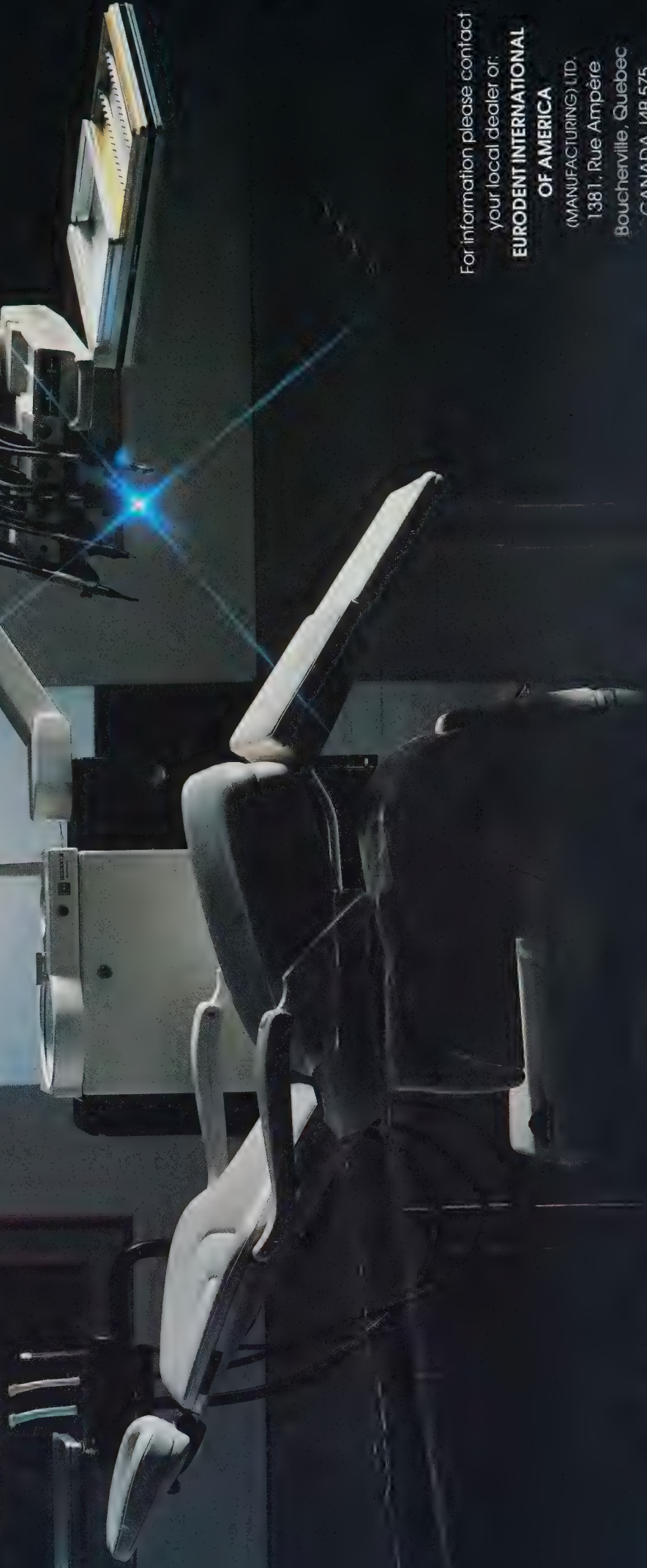
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In cooperation with the provincial dental associations and affiliated organizations, CDA offers services, in both official languages, intended to support and advise all areas of dentistry and to represent, protect, promote and develop the interests of the dentist as ethical practitioner, professional, educator, student, researcher, business person, citizen and individual.

CDA recognizes a particular responsibility to contribute to the development of national positions and standards related to dentistry, dental education, dental research, dental equipment, dental materials and dental personnel.

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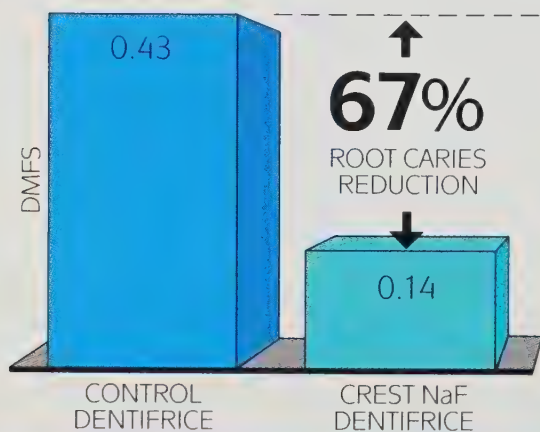
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NOW CREST IS THE ONLY DENTIFRICE CLINICALLY PROVEN TO HELP PREVENT FRUSTRATING ROOT CARIES



We don't have to tell you about the difficulties and frustration in treating certain root caries, but we can give you some new clinical information on prevention.

Crest with sodium fluoride has now been shown to reduce the incidence of root caries by 67% in a controlled clinical study involving 810 adults over 54 years of age! And, considering a

oral health survey reported 25% of patients over age 40 have at least one carious or filled root surface lesion,² that's important to know.

So give your patients the clinically proven advantage against root caries that only Crest has been shown to offer. Recommend with confidence.

References: 1. Jensen ME, Kohout F. The effect of a fluoridated dentifrice on root and coronal caries in an older adult population. JADA 1988;117:829-832 2. 1985 NIDR adult oral survey. Oral Health of United States Adults (1985-1986)



"Crest contains sodium fluoride which is, in our opinion, an effective decay preventive agent, and is of significant value when used in a conscientiously applied program of oral hygiene and regular professional care." CANADIAN DENTAL ASSOCIATION

Visit our booth #1317 at the Ontario Dental Association Convention in May

Crest

The clinical recommendation for root caries

Visitez notre kiosque #122 aux Journées dentaires du Québec

JOURNAL

Canadian Dental Association
l'Association Dentaire Canadienne

April 1990

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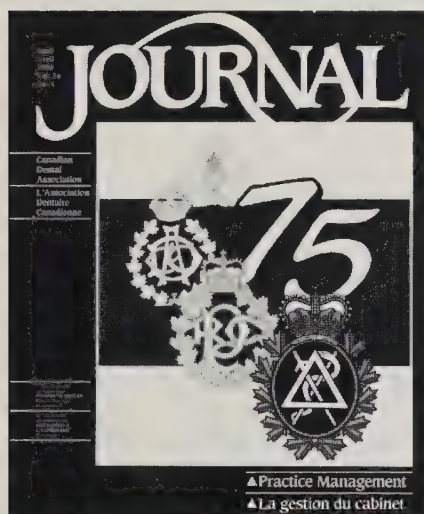
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"Don't Wait for a Crisis!"



75th Anniversary Logo — Military Dentistry

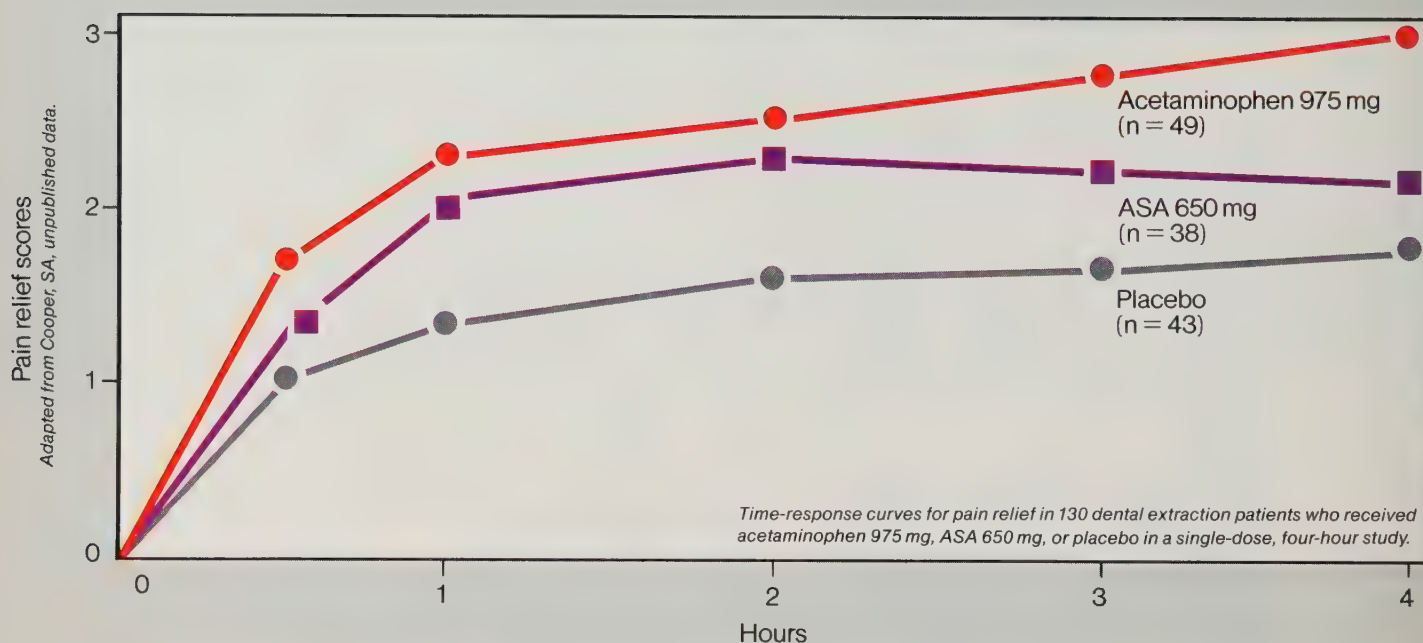
The logo on the cover this month commemorates the 75th anniversary of military dentistry in Canada, and is a composite of military badges. At the top is the badge of the Canadian Army Dental Corps (CADC) worn during the First World War. Next is the second badge of the CADC worn before and during the Second World War. The third badge was worn by the Royal Canadian Dental Corps from 1947 until unification of the Canadian Armed Forces in 1968. The bottom badge is the current badge of the Canadian Forces Dental Services (CFDS), in which the Greek symbol Delta, signifies dentistry, the Rod of Aesculapius and the Crusader Sword signify the healing arts and the military aspects of the Dental Services. The green is the military color for dentistry.

You have to think about much more than pain relief when you recommend an analgesic

With some of the many analgesic choices available, you need to address a lot of medical questions to make a responsible professional recommendation.

Is the patient asthmatic or sensitive to salicylates, prone to ulcers, taking potentially incompatible drugs? A "yes" to any of these questions would exclude any ASA or ASA-narcotic combination product as well as all NSAIDs. And, of course, if there is a risk of bleeding, they would also all be contraindicated because their antiplatelet activity could aggravate bleeding.

Extra-Strength **TYLENOL** acetaminophen simplifies your choice. It is not contraindicated in any of these situations. Extra-Strength **TYLENOL** is not only distinguished by its exceptional safety but its high degree of efficacy.



EXTRA-STRENGTH **TYLENOL** * acetaminophen **CAPLETS**

A responsible professional recommendation for exceptional safety with uncompromised efficacy

Progress — Believe It!

In the fall of 1984, the Management Committee of the Canadian Dental Association, realizing the effectiveness of the Association was languishing, decided to "to do something about it". Not idle wishful thinking nor luke-warm committee mumblings, but actual determination was the order of the day.

A planning session was convened (cloistered far from the busy Ottawa headquarters). The Executive Council and senior staff spent three days in introspection — "reading heads". Mr. Bill Wilton and Mr. Ray Rowse, both professional facilitators associated with the Niagara Institute, led the CDA group in open discussion and small workshop groups.

The three days were not easy! It is not one of the joys of life to participate in the anatomical dissection of one's role in the running of an Association. Numerous short-comings and failures were uncovered. Petty self indulgences and private aspirations had to be set aside, replaced by an agreed determination to achieve a common goal — a vital, vibrant CDA. The 1984 planning session was the beginning of a "new CDA era".

Seven main initiatives were detailed for immediate attention. . .

1. Communications: Review all areas for effectiveness
2. Formulate a Canadian Dental Association Mission Statement
3. A review of Roles and Responsibilities for senior staff, sections, Committees and Councils
4. Develop a strong Government Relations policy with the Executive Director's office as the "pivot"
5. Instigate a functional accounting system demanding a strong sense of fiscal responsibility
6. Make strategic planning routine for CDA
7. Distribute an annual report for the "shareholders of the company"

Last December's publication of the first annual report, "Canadian Dental Association in Action", saw the last of the seven initiatives from the 1984 planning session being adopted as a CDA "way-of-life".

The Canadian Dental Association knows it is on the right track when it reads complimentary letters from its membership. One, from Dr. Robert Cram of Red Deer, Alberta, typifies comments now heard almost on a daily basis,

"The CDA has been making a real effort over the past year or two to communicate better with its members. This annual report is another excellent example of the very positive steps the CDA has taken. I know the members appreciate these efforts — keep up the good work".

Yes Dr. Cram, CDA will continue to keep up the good work and we want you and the rest of the members to tell us when we don't. Without your support, encouragement and constructive criticism there is no Progress. Believe it!

*P. Ralph Crawford, BA, DMD,
Editor: Journal of the Canadian Dental Association*

All statements of opinion and supposed fact are published on the authority of the author who submits them and do not necessarily express the views of the Canadian Dental Association, unless such statements or opinions have been adopted by the Association. The editor reserves the right to edit all copy submitted.

President's Column

A Salute to our Military Confrères

The 75th Anniversary of the formation of a dental corps in the Canadian Armed Services is an appropriate occasion for a Presidential Salute to our military confrères. They have made a major contribution over this period of time, to the Canadian public and to the dental profession.

Canadian Forces Dental Services members have upheld the finest traditions of military service. They have also played a role in professional leadership and service within the ranks of the Canadian Dental Association.

I would like to share some personal experience and knowledge of the extent of their contribution with you.

Exemplifying service through professional leadership, I think of the contribution by Doug Smith, my immediate predecessor as President of the Ontario Dental Association (1982-83). Ron Smith, President of the B.C. College in 1987-88, also comes to mind. Then there is John Robertson of Summerside, P.E.I. and Bill Thompson of Trenton, Ontario, both of whom served as distinguished presidents of the CDA.

Many members of the CFDS have served, and continue to serve in leadership roles within the CDA. I don't have personal knowledge of all of them, but some names spring to mind immediately: Morley Deyette currently a member of the Ethics Committee, Peter McQueen's past service on Health Care and Ed. McGinnis who chaired the Committee on Hospital and Institutional Services. Some Brigadier Generals have also served in the CDA trenches. There is Jim Wright, who served on CDA's Executive Council and went on to become the CDA representative to CDSPI. He is currently the member designate for the CDSPI management group. Dr. Wright is also serving as Chairman of the FDI Commission on Defence Forces Dental Services. Brig-Gen Fred Begin is following in this tradition. He has been appointed as a consultant to the same FDI Commission. Bill Thompson also saw his share of service with the CDA culminating in the presidency. He is currently serving as FDI Treasurer.

It goes without saying that the Canadian Forces Dental Services has served the Canadian public by providing the best of dental health care to the men and women of our Armed Services. I am also personally aware of the valuable service that CFDS dentists provide in small and outlying communities associated with the various bases across Canada. There are places where civilian dentists aren't available and the military personnel provide treatment for civilians. In towns where other dentists are available, military dentists may associate on a part-time basis in local offices and make available specialized dental services which the community might otherwise be too small to support. Once again I am thinking of my personal experience as a general dentist in Pembroke, a town of 15,000 close to the Canadian Forces Base in Petawawa, Ontario. We acquired an orthodontist, in spite of our small population, with the retirement of Lt. Col. Henri Marion.

I also wish to thank the CFDS, on behalf of the Canadian Dental Association for the annual invitation to Canadian Forces Borden for the graduation exercises for the military dental officers. The hospitality extended to CDA Presidents annually is second to none and each and every President eagerly looks forward to receiving his invitation to these graduation exercises. The participation of the CDA President in the ceremonies is symbolic of the cooperative, cordial and productive relationship that exists between the Canadian Dental Forces Services and the CDA. On behalf of the Canadian Dental Association, I want to extend the warmest of congratulations to the Canadian Forces Dental Services on 75 years of outstanding service to our country, our profession and our communities from coast to coast.

*Kevin L. Roach, BSc, DDS,
President of the Canadian Dental Association*

Seventy-Five Years of Military Dentistry in Canada

Colonel (Ret'd) D.H. Protheroe, DFC, CD, DDS, MPH, FICD

The Author

In 1941, at age 19, Dr. D.H. Protheroe from Elnora, Alberta enrolled in the RCAF as a navigator. He served with RAF Bomber Command during WW II and was awarded the Distinguished Flying Cross (DFC). He obtained his DDS from the University of Alberta in 1950 and a MPH from the University of Michigan in 1958. He spent his entire dental career in the Canadian Forces where he achieved the rank of Colonel and retired in 1979 after 35 years of service. Dr. Protheroe recently published a book on the post-war history of the RCDS/CFDS.



Col. D.H. Protheroe

This year the Canadian Forces Dental Service is celebrating the 75th anniversary of the formation of a dental corps in the Canadian Armed Forces. The Canadian Army Dental Corps (CADC) came into being on April 20, 1915.

Canadian military dentistry began in 1900 on the fields of South Africa with two Canadian Dentists, Drs. D. Baird of Ottawa and E. Lemieux of Montreal, serving with the Canadian contingent of the King's Army against the Boers (1899-1902). The great number of soldiers who required emergency dental care in South Africa established the fact that dental services in the field were essential. The Canadian Dental Association reacted while the war was in progress and pressed the government to form a regular army dental staff as a distinct branch of the medical service. The effort was crowned with partial success when the government, in 1904, authorized the establishment of 18 dental surgeons in the Army Medical Corps. A total of 33 dentists served part time with the Canadian Army Medical Corps from 1904 until the outbreak of the First World War in 1914.

Canadian Army Dental Corps

When war was declared in August 1914, recruiting began for the Canadian Expeditionary Force and many young men were rejected for dental reasons. The dental

surgeons attached to various medical units could not cope with the demand for service. As a result, civilian dentists were asked to volunteer their services and much of the dental treatment for army personnel in the early stages of the war was provided by civilians. In April 1915 the first Canadian military dental clinic was established in a stable at the Exhibition Grounds in Toronto.

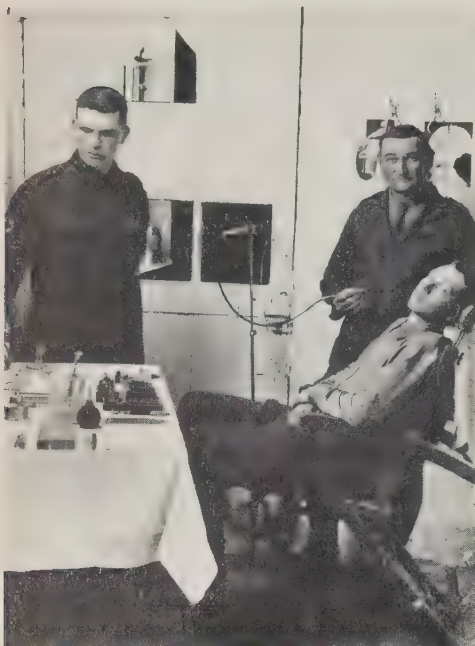
It soon became evident to the military authorities that a larger military dental service was required. On April 20, 1915, The Canadian Army Dental Corps (CADC) was authorized as a separate corps under administrative and professional control of the Director of Medical Services.

By July 1915 the CADC had 30 dental officers and 74 other ranks providing dental services to Canadian troops in the United Kingdom. It did not take long for the CADC to earn recognition. The President of the British Dental Association wrote: "The Canadian Army is the only army in the world that attempts to send its soldiers to the front dentally fit, and keep them fit." When the war ended in 1918, 223 officers and 459 other ranks were serving in stationary hospitals, field hospitals and field ambulances in Great Britain, France and Belgium. The administrative headquarters of the CADC was located in London, England, under command of Lieutenant-Colonel (later Colonel) J.A. Armstrong.

On the 11th of November 1918, the last shot was fired; the war was over. In December 1919, after all returning troops had received their dental treatment, the CADC was demobilized and thereafter existed only as part of the Non-Permanent Active Militia.



Activity in a building at the Canadian National Exhibition Grounds in Toronto in 1915. This was the first military dental clinic in the British Empire.



This was an early dental operatory under field conditions overseas in 1915.

Canadian Dental Corps

Between the great wars, dissatisfaction with the condition of the Corps was strong among Canadian dentists, particularly former members of the service. In June 1938, a committee of the Canadian Dental Association made representation to the Canadian government proposing a self-administered dental corps. The clouds of war looming on the European horizon very likely accelerated governmental action. On August 30, 1939, the Canadian Army Dental Corps was disbanded and the Canadian Dental Corps (CDC) was created as an independent army corps.

The head of this new organization became the "Chief Dental Officer and Officer Administering the Canadian Dental Corps", a very descriptive title demanded by the Canadian Dental Association. The first dental officer appointed to this position on September 1, 1939, was Lieutenant-Colonel Frank Melville Lott of Toronto, a World War I veteran and a 1923 University of Toronto dental graduate.

On September 10, 1939, Canada declared war on Germany. Shortly thereafter the Corps was called out on active service. The first CDC clinic to process enlisting personnel was set up, as in 1914, in the "Cow Palace" of the Toronto Exhibition Grounds. Although essentially an Army organization, the Corps was employed on a tri-service basis with deputy directors responsible for



This scene is of Capt. W.J. Smith rendering dental treatment to a Canadian soldier during Exercise Spartan in England, in 1943. This was a forerunner (training exercise) to the Normandy Invasion.

dental services for the RCN and RCAF.

In December of 1939, a Divisional Dental Company under command of Major W.G. Trelford sailed for England with the First Canadian Division. It was the first of 18 dental companies which served overseas. There were 14 in support of army formations, three with the RCAF and one with the RCN. They were widely spread, in England, North West Europe, Italy and North Africa.

Mobility Drew Praise

In the field, each battalion or equivalent unit of a battle formation was served by a dental detachment comprised of a dental officer, dental assistant, driver and a mobile dental clinic. The mobile dental clinic was developed early in the war on a standard three ton truck chassis and proved very effective. Thanks to this vehicle, the CDC provided dental care closer to the front lines than the dental service of any other nation. The equipment and mobility of the CDC won the praise of dental personnel of other allied forces. It is certain that no troops received better dental care than the Canadians.

The rapid growth of the CDC during the war created a greater demand for trained dental assistants and laboratory technicians than could be met through enlistment. To overcome this problem, a Technical Training Centre was opened in Toronto in 1943 to train personnel for these trades. During the war the CDC grew to a strength of 1,562 dental officers and 3,725 other ranks, of whom 748 offi-

cers and 1,747 other ranks served overseas. Fourteen officers and nineteen other ranks were killed or died in active service.

Demobilization of the CDC along with the rest of the forces began shortly after the cessation of hostilities but the outstanding performance of the CDC during the war convinced the authorities that it should be kept alive after demobilization. In October 1946 the CDC was reorganized as a component of the peacetime forces with a Directorate, No. 11 Company (Army), No. 12 Company (Navy), No. 13 Company (RCAF) and No. 1 Dental Stores. No. 14 and No. 15 Companies were authorized in 1950 due to an increase in the size of the Armed Forces.

The wartime director general, Brigadier F.M. Lott, retired in February 1946 and his successor, Colonel D.S. Coons, retired in September of the same year. He was followed by Colonel (later Brigadier) E.M. Wansbrough who held the appointment for the next 12 years.

Royal Canadian Dental Corps

The splendid performance of the CDC during the war was recognized on 15 January 1947 when King George VI granted a royal warrant to the CDC and the Royal Canadian Dental Corps (RCDC) came into being.

The early years of the RCDC were not easy. The establishment was inadequate to permit provision of an effective dental service, and even so, it was not possible to fill the positions authorized. The establishment of a Dental Officer Training Plan, which subsidized the cost of dental

undergraduate training, was successful and has been the primary source of dental officers ever since. During the period 1948 to 1989, the undergraduate training of 802 dental officers was subsidized by the Department of National Defence. In spite of the success of the program, a low retention rate of subsidized dental officers at the end of their required service resulted in a chronic shortage of dental officers during much of this period.

When the Canadian Army was reorganized in 1946, provision was made for each corps to have a school for training. The RCDC School was located in Ottawa and the training of dental assistants and laboratory technicians commenced in August 1947. Dental hygienist training commenced in 1956. The school remained in Ottawa until 1957 when it moved to a new building designed for dental training at Camp Borden and in 1969 was re-designated the Canadian Forces Dental Services School. This school trains dental assistants, laboratory technicians, hygienists and remains the only training program in Canada for dental equipment technicians.

From 1950 to 1954 the RCDC again functioned in support of troops in action. War broke out in Korea in June 1950 and Canada contributed an army brigade to operate with the United Nations Force. A Canadian field dental unit was formed in August 1950 and served in Korea until 1954 when it was disbanded. However, a small number of dental personnel continued



In the Middle East in 1959, United Nations dental officers pose with King Hussein of Jordan.

to serve there until 1957. Altogether 43 dental officers and 85 other rank personnel saw duty in Korea.

Support to NATO units

The NATO agreement was signed in 1949 and Canada's initial contribution was an infantry brigade group for service in North West Germany. The brigade was formed in 1951 with dental support from 27 Canadian Field Dental Unit. The name of the unit was later changed to 1 Field Dental Unit and then to 4 Field Dental Company. The unit was disbanded in 1970 when Canada reduced its commit-

ment to NATO. Eighty-five dental officers and 141 other ranks served in the unit during its 19 years of operation.

The commitment by Canada to NATO also included an air division. Dental support was provided by 35 Field Dental Unit which was formed in April 1953. The unit headquarters was located in Metz, France, with detachments in France and West Germany. This deployment changed suddenly in 1967 when France expelled all NATO Forces. Unit headquarters and detachments from France were re-located in Lahr, West Germany. The 35 Dental unit remains in



In a more modern era – dental treatment is rendered in an Armed Forces mobile clinic in Canada, in 1975.



Dentistry afloat. Captain Lyne Lapointe and Sgt. Marie Lee-Grant, dental officer and dental assistant aboard the HMCS Protector, seen recently in Halifax.

operation today in support of Canadian Forces Europe.

During the 1956 Suez crisis, Canada once again heeded the call of the United Nations. A Canadian peacekeeping contingent, which included a 10-man dental detachment, was dispatched to Egypt. It remained until 1967 when President Nasser of Egypt requested removal of the force and the Canadians returned home. One hundred RCDC personnel served with the dental detachment during its 11 years of operation. In 1973 the second United Nations Emergency Force Middle East was sent to Egypt, again including a Canadian contingent with a dental team. The contingent served in Egypt and the Golan Heights of Israel until it was disbanded in October 1979.

Canadian Forces Dental Services

On February 1, 1968, the Canadian government disbanded the Royal Canadian Navy, the Royal Canadian Air Force, and the Canadian Army and unified the three branches into the Canadian Forces, all wearing a dark green uniform.

The first of January 1970 marked the end of an era. On that day the Royal Canadian Dental Corps was re-designated the Canadian Forces Dental Services. The change in name had no effect on the service provided but a change in command structure and the disbanding of the brigade in West Germany necessitated a realignment of some dental unit boundaries and responsibilities.

The mandate of this military dental organization is unique. In peacetime the CFDS' task is to provide dental services to all Canadian Forces personnel in remote parts of Canada and the world, and to ensure that the Canadian Forces personnel are dentally fit to go to war or on extended peacekeeping missions with the United Nations. To ensure that all personnel are dentally fit, the Canadian forces has a compulsory dental program which ensures that all personnel are seen on an annual basis, and also prioritizes dental treatment so that all personnel meet a minimum of dental fitness. In wartime and during peacekeeping missions the CFDS has to be prepared to accompany the Canadian Forces in the field and at sea. This half of the mandate requires that all CFDS personnel are fit, well equipped and well trained in field operations. In 1985 the CFDS received 39 new mobile dental clinics and five new mobile



This attractive structure houses the Canadian Forces Dental Services School at Canadian Forces Base Borden, Ontario.

dental laboratories to improve their field capability.

In 1985 the government of Canada reorganized the Canadian Forces into three distinct elements with distinctive uniforms similar to the old Navy, Army, and Air Force. In this reorganization the CFDS was assigned to the land element and once again was given a khaki uniform.

The present CFDS consists of 175 Dental Officers, 22 of whom are specialists, 17 Associate Officers and 430 other ranks and civilians.

After 75 years, the dental branch of the Canadian Forces is alive and well, and the Canadian military community continues to be well served by dental personnel in uniform. Δ

Did you know?

That CDA had a NO SMOKING policy almost 25 year of age? At the Annual Meeting of the Board of Governors in June 1964, the following special resolution was adopted anonymously. . .

"Whereas the Canadian Dental Association is dedicated to the improvement of the health of the people of Canada, and
Whereas there is a considerable mass of scientific evidence that smoking is detrimental to health, therefore be it,
Resolved that the Canadian Dental Association go on record as actively supporting the objective of the Canadian Smoking and Health Program of the Department of National Health and Welfare.

It is directed that a letter be sent to the Minister of the Department of National Health and Welfare advising her of this resolution."

Profession mourns passing of two prominent Atlantic Canada dentists

The Journal has been advised of the death of two prominent members of the dental profession in Atlantic Canada — Drs. John F. (Jack) Edgecombe, of Rothesay, New Brunswick, and Reginald Ball, of Grand Falls, Newfoundland.

Dr. Jack Edgecombe passes at age of 91



Dr. Jack Edgecombe

One of the most illustrious practitioners in the annals of dentistry in New Brunswick, Dr. John F. (Jack) Edgecombe, died recently in Rothesay, New Brunswick, at the age of 91.

Dr. Edgecombe, a graduate of the Royal College of Dental Surgeons and the University of Toronto in 1923, enjoyed a distinguished career in organized dentistry and with the Canadian Dental Corps during the Second World War.

He began his practice in Saint John in 1924, and soon became a driving force in the New Brunswick Dental Society, serving as President in 1929 and 1930. He was elected to the Board of Governors of the Canadian Dental Association and served from 1960 to 1968, in that capacity. In 1970, he was named Honorary President of the New Brunswick Dental Society.

In 1980, Dr. Edgecombe was honored as a Honorary Life Member of the Canadian Dental Association.

Military service

In 1940, Dr. Edgecombe was named commandant of No 3 Dental Company 3rd Canadian overseas Division of the Canadian Dental Corps. He took his unit overseas in 1941 as a Lieutenant Colonel. In 1942 he was appointed Assistant Director of Dental Services, with the rank of Colonel, at 1st Canadian Army

headquarters.

He served in the Italian theatre of war in 1943.

In 1944, he returned to the United Kingdom and at that time, received the Order of the British Empire from King George VI. He returned to serve with the Canadian Army in France until the cessation of hostilities in May, 1945.

In July, 1945, he was appointed Deputy Director of Dental Services at the Canadian Military headquarters in London. He returned to Canada in December of that year and was discharged in 1946.

In 1947, when the Canadian Army was reorganized, Dr. Edgecombe was appointed Assistant Director of Dental Services for Eastern Command (in Nova Scotia and New Brunswick). He was honored in June 1953 as the first militia Queen's Honorary Dental Surgeon in Canada. He retired from the Canadian militia in 1959 and was named Honorary Colonel of the Royal Canadian Dental Corps (1960 to 1964).

First war service

Dr. Edgecombe had won his military epaulettes in the First World War. He began his early military training in 1913 and was drafted overseas in 1917. Dr. Edgecombe served in France as a gunner with the Canadian Field Artillery. He was discharged in 1919. He returned to the militia in 1926 and in 1927, qualified as a Lieutenant, artillery.

In 1938, he qualified as a Major in coast defence artillery and was second in command of the 3rd Coast Regiment when the Second World War broke out, in 1939. In November of that year, he transferred to the Dental Corps and was appointed District Dental Officer of the New Brunswick Military District, and Commanding Officer of No. 7 Company, Canadian Dental Corps. △

Dr. Reginald Ball dies in 70th year

Dr. Reginald Ball, a man who distinguished himself not only among dental colleagues across Canada, but also in military and community service, died recently in Grand Falls, Newfoundland.



Dr. Reginald Ball

A graduate of Dalhousie University dental school in 1942, Dr. Ball had served overseas during the Second World War as a commissioned officer in the Canadian Dental Corps. He served with the Canadian 6 Group Bomber Command (RCAF) in northern Yorkshire from 1942 to 1946, when he was discharged.

He established his dental practice in Grand Falls immediately following his military career and continued it until his retirement in 1989.

He became a leading figure in organized dentistry in his native Province. He was a past president of the Newfoundland Dental Association, and served on the Newfoundland Dental Board for eight years. He was a Newfoundland delegate to the National Dental Examining Board at the time of its inception and continued as a member for about 15 years, including two years as president.

In 1983 he was made a Life Member of the Newfoundland Dental Association and received a certificate of merit.

Dr. Ball was also honored by the Canadian Dental Association for his distinguished service to his profession. He was made a Life Member of the CDA.

In 1985, his Alma Mater, Dalhousie University, named him as the recipient of its Outstanding Alumnus Award.

Community service

An outstanding, all-round citizen, Dr. Ball is also remembered for his generous service in community affairs.

He has served as president of Grand Falls Lions, Rotary, Curling and Golf Clubs and the local hockey association.

Dr. Ball was a member of the Newfoundland Curling Hall of Fame, and a Paul Harris Fellow, the highest honor that Rotary International can confer on a member. He was also involved in the activities of the Air Cadet League of Canada.

Appointment to Journal staff

An additional member has recently been added to this Journal's editorial staff — Mrs. Louise Després-Jones.



Mrs. Louise Després-Jones

Mrs. Després-Jones, a graduate from l'École des Beaux-Arts de Québec (Université Laval Campus), with honors in advanced drawing and ceramic sculpture, later became involved in production and layout of community newspapers in the Midland-Penetanguishene and Ottawa areas of Ontario.

She is now serving as Assistant Editor of this Journal.

As a scholarship student, she studied modern languages at the University of Moncton.

Following graduation from l'École des Beaux-Arts, Mrs. Després-Jones taught art for several years, to children and adults.

While involved in community newspaper production in the Midland area, she became certified in newspaper and advertising layout, typesetting, photography and darkroom techniques in community college courses.

In the Ottawa area, she produced a tabloid in-house publication for a cultural centre in a community east of that City. Prior to her appointment at this Journal, she was employed as a graphic designer for an Ottawa printing house where her tasks varied from concept to end product.

In her home studio, Mrs. Després-Jones continues to do illustration and cartooning on a freelance basis.

Her other hobbies include some writing and she has published poetry. △

Meet the CDA Headquarters Staff

ADMINISTRATION



Members of the Administration staff at the Canadian Dental Association headquarters building in Ottawa pose for the Journal photographer. They are, from the left:

Shelagh Dunlop, Business Manager, who provides managerial support to the Director of Administration assuming full responsibility for assigned projects and assisting the Director in carrying out his/her duties;

Josée Montgomery, Accounting Clerk, who performs basic bookkeeping tasks within the Accounting Department in accordance with standard procedures;

Joan Kerwin, Accountant, who manages all accounting functions within the Association and supervises the work of the accounting clerk;

Shawn Driscoll, Accounting Clerk, who performed basic bookkeeping tasks within the Accounting Department in accordance with standard procedures. (He recently left the CDA to pursue a career in police work).

Joel Neal, Director of Administration, who is responsible for financial management, budget processes, financial information systems and maintenance of administration systems, facilities maintenance and support to personnel functions. △

Did you know?

Over 3,300,000 Canadians, 13.8 per cent of the population, have some level of disability. Using the WHO definition:

"any restriction or lack (resulting from an impairment) of ability to perform an activity in the manner or within the range considered normal for a human being"

A recent Statistics Canada survey indicated:

- * disability rates increased with age from 5.2 per cent for children to 45.5 per cent for adults over 65.
- * just under 40 per cent of disabled adults aged 15 to 64 were employed compared to 70 per cent of non-disabled.
- * 16 per cent of seniors over 65 resided in institutions.

Microwaves inspire new technology in denture processing

Microwaves may soon be used in a time-saving process to make dentures fit better than ever before.

Phillip Wallace, DDS, a 1988 alumnus of Eastman Dental Centre (Rochester, NY), researched the use of microwave energy in fabricating dentures and was impressed by the results. Dr. Wallace is a Cleveland, Ohio, area dentist who lives in Cleveland Heights.

"For dentures to feel comfortable, the base must be made according to exact specifications," said Dr. Wallace.

"Fitting a denture properly is made more difficult by the tendency of the resin to shrink as it cures," he added. "My research indicates that when microwave energy is used in curing, shrinkage seems to be kept to a minimum."

Dr. Wallace's study, "Dimensional Accuracy of Denture Bases Cured by Microwave Energy," won a second place award in the 1989 John J. Sharry Research Competition, sponsored by The American College of Prosthodontists.

Dr. Wallace notes that with low shrinkage, patients are more likely to experience good fit. That means they may be able to eat a wider variety of foods. They can also look forward to a healthier mouth because tissues supporting the denture will not be damaged by excessive rubbing.

The microwave technique researched by Dr. Wallace can be applied when new dentures are made or when old dentures need relining.

"Whether a denture is newly made or refitted, the patient is often inconvenienced by a day-long wait for the denture to return from the dental laboratory. Much of the wait is due to the nine-hour water bath process used by most laboratories for curing.

"This new microwave process takes only 15 minutes, so the wait for refitted dentures can conceivably be reduced to a half-day."

Dr. Wallace researched the process when he was a student at Eastman Dental Centre. Dr. Marianne Bafile, then a clinical instructor in the Department of Prosthodontics, had interested Dr. Wallace in her own research on the microwave technique.

Missing Person

I am employed as a Registered Dental Assistant in the office of Dr. D.G. Baird, in Halifax, Nova Scotia.

My sister Kimberly has been missing from Halifax since August 12, 1989.

There was an extensive search in the Metro area which yielded some leads, all of which have led us nowhere. At this point in time, we are trying to get more publicity on a national scale.

Any further dental information required could be supplied from Dr. Mark Dickson, Springhill, Nova Scotia; Dr. Lee Erickson, an orthodontist, in Dartmouth, Nova Scotia, or Dr. A.K. Bhardwaj, of Bedford, Nova Scotia, her oral surgeon.

I can supply personal information about Kimberly at 6320 Maxwell Street, Halifax, B3L 3L5, or by telephone at (902) 454-8994. My parents (Cyril and Audrey McAndrew) can be reached at P.O. Box 331, Parrsboro, Nova Scotia, B0M 1S0 (902) 254-3628.

Thank you from myself and my family for any assistance you can give us. Δ

Erin McAndrew

Description



Kim was last seen on Quinpool Road, Halifax, on Saturday August 12, 1989. She is a 5-foot, six-inch tall girl, weighing 105 pounds. She has sandy blonde hair and has braces on both upper and lower teeth. She was last seen wearing a white short sleeved T-shirt, navy pants, green loafers and carrying a navy canvas knapsack.

She is 19 years of age.

Anyone with information about the whereabouts of this person please contact your local police department, or call one of the following telephone numbers:

Child Find Nova Scotia

1-800-387-7962

or

Victims of Violence and Missing Persons, Halifax 902-423-2200

Crime Stoppers 902-422-8477

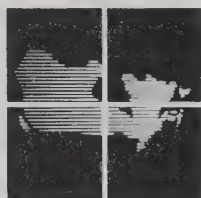
Halifax Police Dept. 902-421-6870

A \$10,000 reward has been posted.

"Both Dr. Bafile and I are part of a larger group of U.S. researchers studying various aspects of this technique for curing denture bases," said Dr. Wallace. "It was initially investigated in Japan twenty

years ago, but was considered impractical at the time. New denture materials have reawakened interest in this application of microwave technology in dentistry." Δ

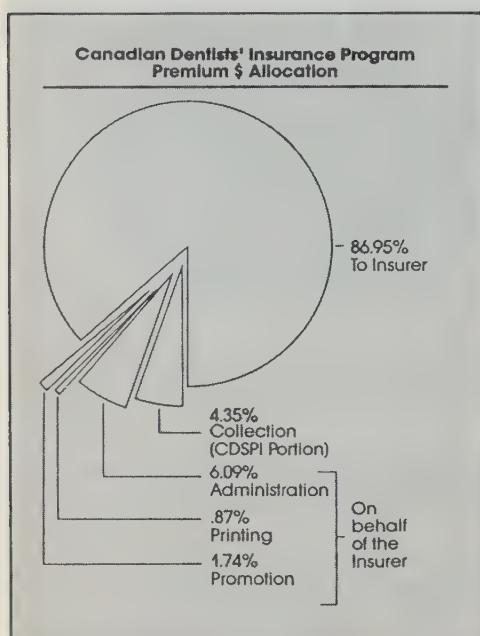
CDSPI Reports



Your Premium Dollar

Many people have asked us what happens to the insurance premiums they pay to CDSPI. In some discussions on this matter, it comes to our attention that a number of participants visualize CDSPI as an insurance company. CDSPI is an administrator on behalf of the CDA and the insurance companies that deal with us. Only a very small portion of the entire premium dollar paid to CDSPI remains with CDSPI.

The pie chart below, will give you an indication of how each premium dollar received by the Canadian dentists' Insurance Program is allocated.



Printing and Promotion Costs — 2.61 per cent of your premium dollar is used to communicate to you what is happening in your programs.

Another segment, 6.09 per cent, directly relates to the administration of the programs, day-to-day processing of

applications, data processing costs, and the monitoring and overview by internal and external professionals, who keep a close watch on the activities of your plans.

The billing and collection of the premium absorbs 4.35 per cent of the total.

As the chart indicates, the outside insurer, who provides the necessary overall protection to you as the insured, receives 86.95 per cent of your premium dollar.

Each line of coverage has its own separate account and is maintained independently of the others. Out of this account the insurer must pay taxes and maintain certain reserve levels as dictated by the Provincial Superintendents of Insurance, as well as cover their own administrative costs in running their portion of your program.

The remainder of the premium paid to the insurer is used to satisfy current claims and set up reserves for future claims as and when they are made.

The allocation of the premium dollar by insurers is a complicated formula, taking into account such terms as Contingency Fund Reserves, Actuarial Reserves, Rates Stabilization Funds, Retention Funds, and Incurred But Not Reported Reserves.

Consultants retained by CDSPI annually audit the use of your premiums, prepare annual reports to the Directors and Co-sponsors, and negotiate new contracts and plan benefits based on such review and monitoring. This is supervised and controlled by CDSPI's Management Committee who report to the Board of Directors on the results. Δ

Obituaries/Nécrologie

Gibson, James A. Dr. Gibson was a graduate of the Faculty of Dentistry, McGill University, Montreal, in 1951. He practised dentistry in Calgary, Alberta, for many years and had served as President of the Calgary & District Dental Society. He was a Life Member of the Canadian Dental Association.

Harder, Abram. Born in Russia in 1905, Dr. Harder was a graduate of the University of Alberta in 1939. He conducted a private dental practice in Barrhead, Alberta. He was a Life Member of the Canadian Dental Association.

Horowitz, Harry. A graduate of the University of Toronto in 1931, Dr. Horowitz practised dentistry in Toronto. He was a Life Member of the Canadian Dental Association.

MacMillan, Donald D. A graduate of the University of Toronto in 1924, Dr. MacMillan conducted a private dental practice in Leamington, Ontario for 50 years.

Miller, L.W. Dr. Miller was a graduate of the Faculty of Dentistry, University of Alberta, in 1948. He conducted a private practice in dentistry in Grenfell, Saskatchewan.

Steingraeber, Paul R. A graduate of the University of Alberta in 1956. Dr. Steingraeber practiced dentistry in Edmonton. He was a Life Member of the Canadian Dental Association.

Stinson, Allan Clayton. A graduate of the University of Toronto in 1942, Dr. Stinson conducted a long-time private dental practice in Ottawa, Ontario. He served three years overseas with the Royal Canadian Dental Corps during the Second World War.

Wodnicki, Stanley. He was graduated in dentistry in 1957. Dr. Wodnicki conducted a dental practice in Montreal.

The DAP Advisor offers information, ideas and advice to improve dentist/patient communication, raise awareness about good dental health, and help your practice become busier.

April is Dental Health Month

April is Dental Health Month, the one month of the year set aside to increase Canadians' awareness of good dental health. It's the month when we Celebrate the Smile and help patients Keep Smiling with a variety of promotional and educational materials. Throughout April, we remind Canadians of the pivotal role the dental team plays in keeping teeth good for life.

Dental Health Month is also the perfect time to reflect on how effective you've been in communicating the importance of good dental health to your patients.

It's not always easy to know if you're getting the message across. Effective communication, after all, is more than simple cause and effect — giving patients information and having them adopt better dental health practices. It's a subtle, long-term process of building rapport, inspiring confidence, and educating people about good dental health and how — with your help — they can achieve it. It doesn't happen overnight.

One tried-and-true way of determining your communication effectiveness is to ask patients for their feedback straight out, either person to person or via a questionnaire. When designed well and administered carefully, both the interview and the questionnaire are excellent sources of information about your communication effectiveness.

But there is a faster way to get a "snapshot" of your practice. Put yourself in your patients' shoes for a few minutes. Visualize yourself walking into your office, talking with your receptionist, sitting in your waiting room, settling into your dental chair, undergoing treatment, dealing with the paperwork on the way out. Now, while you have the point of view of your patients, take a look at the statements below and indicate your agreement or disagreement with each one. Think carefully before you respond, and try to keep that "patient perspective" as you do so.

When I come into the operatory, my dentist immediately puts me at ease.

Agree
☐

Disagree
☐

My dentist is approachable and really listens to what I have to say.

Agree
☐

Disagree
☐

My dentist encourages me to adopt good dental health practices, but I never feel like I'm being judged or reproached.

Agree
☐

Disagree
☐

My dentist is always willing to discuss my concerns; he/she never belittles my fears.

Agree
☐

Disagree
☐

No matter how busy he/she is, my dentist never makes me feel rushed.

Agree
☐

Disagree
☐

When my dentist discusses dental matters with me, I feel like it's a dialogue, not a monologue.

Agree
☐

Disagree
☐

My dentist usually spends time at the beginning or end of my appointment to talk about my dental health.

Agree
☐

Disagree
☐

I get the feeling that my dentist and the entire dental team care about me as a person, not simply as a patient.

Agree
☐

Disagree
☐

April is Dental Health Month!
Make sure you and your dental team are ready to join in the Celebration of the Smile. Here are some great ideas:

- Order Keep Smiling buttons from the CDA and hand them out to all your patients.
- Use the Five Point Prevention Plan appointment cards to notify patients of their next appointment.
- Take smiling photos of all your patients and post them on your wall or bulletin board.
- Put crayons and construction paper in your waiting room and invite children to draw and colour a picture of their biggest smiles.
- Dress up your office with Keep Smiling balloons and Celebration of the Smile posters.

The DAP Advisor is a service of CDA's Dental Awareness Program, an ongoing campaign dedicated to helping all Canadians keep their teeth Good For Life.

A new international body has been formed to represent the dental industry worldwide.

The Australian Dental Industry Association Inc. (ADIA), the Fédération de l'industrie dentaire en Europe (FIDE), the Japan Dental Trade Association (JDTA), the American Dental Trade Association (ADTA), and the Dental Manufacturers or America Inc (DMA), have together agreed to form the International Dental Manufacturers.

IDM will meet regularly to discuss matters of international dental industrial concern. Its aim is also to improve the relationship between the dental profession and industry, through representing proposals and opinions to the FDI.

The formation of this new body means that for the first time, the Fédération Dentaire Internationale has an international counterpart in discussions of mutual interest between industry and the profession.

The IDM became an affiliate member of the FDI in Amsterdam, Holland, at the 1989 World Dental Congress. △

Dentists are increasingly extending their skills beyond treatment in the human oral cavity.

Recently, a turtle, whose shell was damaged when run over by an automobile, was saved from further injury by a Cambridge, Maryland, dentist and a local veterinarian.

Luckily for the turtle, the vet was the person whose car ran over the creature. After the accident, she examined the turtle and found its undershell was broken into two pieces. She had never treated a turtle before and didn't know how to repair the damage.

By chance, a dentist was at the veterinary hospital consulting on a root canal for a dog. He overheard the vet discussing her problems with someone from the Chesapeake Wildlife Rehabilitation Center.

The dentist offered to take the turtle to his office and patch up the shell using dental acrylic. He splinted the shell and glued it back together with a substance normally used for making dentures and repairing teeth.

The turtle was released a few days later when it appeared to have recovered from its ordeal.

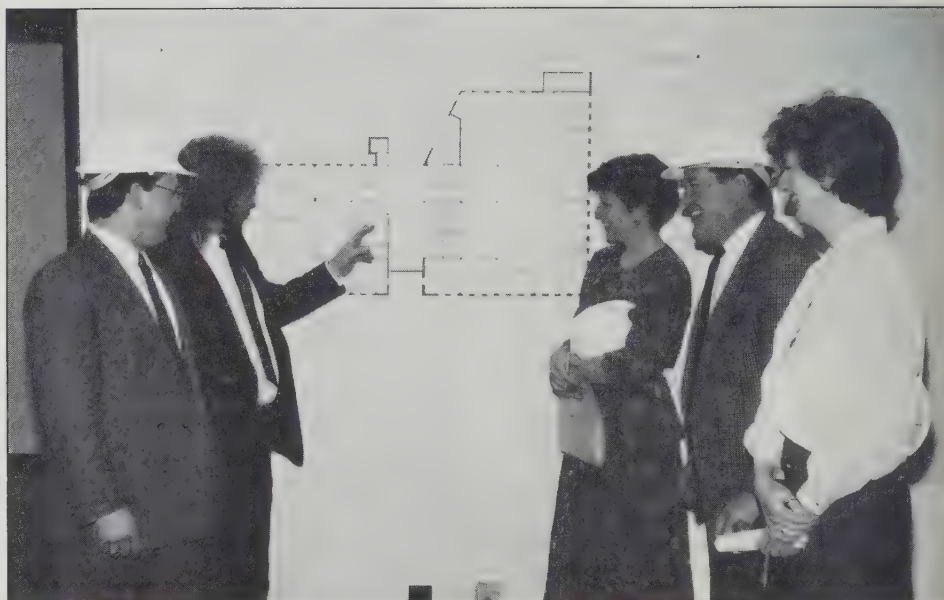
(ADA "Update for Dental Editors" — January, 1990) △

SASKATCHEWAN DENTAL COLLEGE AIDS MOZAMBIQUE



Working with Dr. Murray Dickson (standing), of the College of Dentistry, University of Saskatchewan, dental tutors Fernando Cadalonga (left) and Argentina Munguambe, from Mozambique, are learning desktop publishing for use in developing teaching materials. They are participating in a project aimed at helping Mozambique develop the infrastructure required to support dental training and continuing education of oral health personnel. The College of Dentistry is participating in the project with Mozambique's National Directorate of Health, and the Canadian International Development Agency is providing more than \$540,000 in financial support. △

CDA HEADQUARTERS RENOVATIONS UNDER WAY



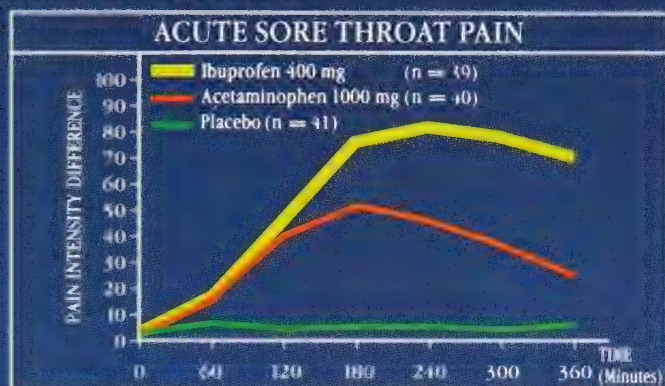
Mr. Aivars Perkons, Senior Technical Designer with the firm Epps Interiors Inc. (second from left) explains renovations which will provide more office space for staff members at the CDA headquarters building in Ottawa. Looking on, (from the left) are: Joel Neal, CDA Director of Administration, Mrs. Julie Hentschel, CFDE Executive Secretary, Mr. Jardine Neilson, CDA Executive Director and Mrs. Ruth Beaulieu, Secretary to the Executive Director. The extensive renovations are scheduled for completion by early July. △

(PHOTO BY C. METCALFE)

Announcing a new standard for OTC analgesia.

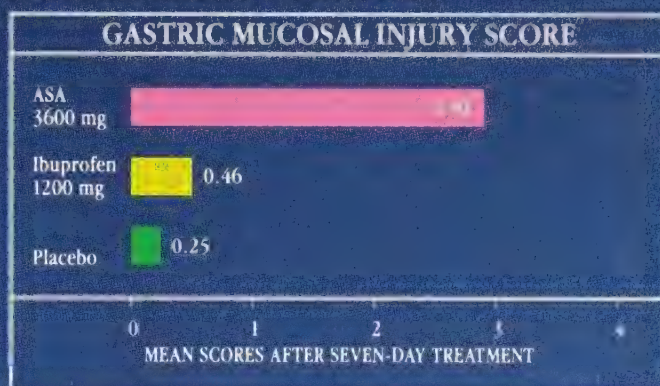


PROVEN EFFICACY:



Two Advil tablets (ibuprofen 400 mg) provided significantly more pain relief and reduced pain significantly better than acetaminophen 1000 mg.¹

PROVEN SAFETY PROFILE:



After seven days treatment, ibuprofen (1200 mg daily) was comparable to placebo and significantly better than ASA (3600 mg daily) in avoiding gastric mucosal injury.²

Advil combines the pain relief with the safety profile you want for your patients.

That's why physicians worldwide have recommended Advil over 35,000,000 times.

So next time you recommend an OTC analgesic for your patients, consider Advil.

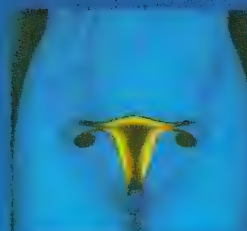
Advil[®]

OTC IBUPROFEN 200 MG

A new standard for OTC analgesia.



Headache



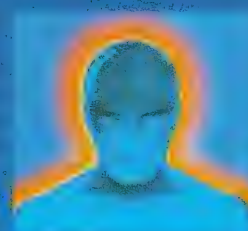
Dysmenorrhea



Muscle Aches & Joint Pain



Dental Pain



Fever

WHITEHALL LABORATORIES LIMITED
A Health Care Division of American Home Products Corporation

See prescribing information, page 343

PAAB
CCPP

DENTAL HEALTH MONTH 1990

Bob is Back!

And he's set for the 90s

With t-shirts, posters, balloons
and other things that'll bring a
CELEBRATION OF THE SMILE
to your office and community.

And help make Canadians more
aware of good dental health.

High quality products.

Reasonable prices.

And Bob Live too!

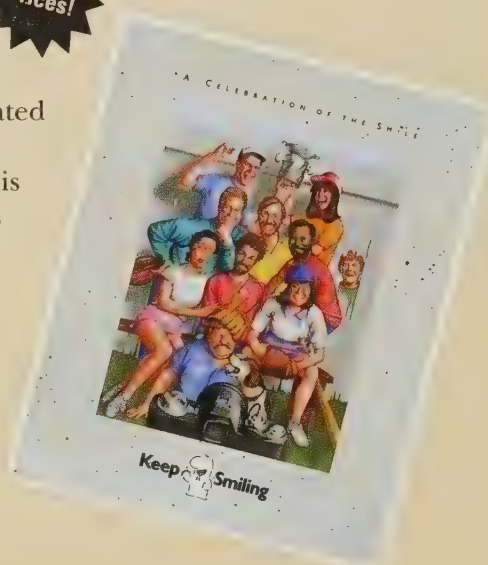
So bring on the decade.

And get ready to celebrate!

Celebration Poster

More than a poster - an original work of art! Created by renowned Canadian illustrator John Fraser, this full-colour print captures the spirit and warmth of "A Celebration of the Smile". It'll look great in your office or waiting room. Approx. 18" x 24"

CDA members: \$2.00
Non-members: \$4.00



Display Card

Put it on a waiting room table and on your office desk. Display it in the reception area. Give it to patients as a jumbo reminder of the Five Point Prevention Plan. Folds to 3 1/2" by 8".

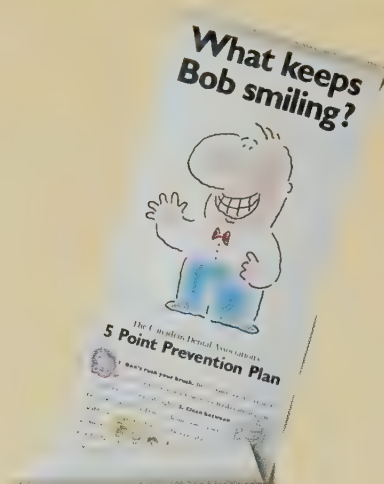
CDA members: \$.60

Non-members: \$1.20

Bob Poster

Size 12 1/4" x 36"

CDA Members: \$1.00
Non-members: \$2.00



Bob's Radio Commercial

A 30-second public service announcement for use by all local and regional media relations organizers during Dental Health Month.

CDA members: \$8.00
Non-members: \$16.00

Display Balloon

A BIG balloon - it inflates to 40 inches around - for displays and exhibits.

CDA members: \$9.75
Non-members: \$19.50

Super Stickers

Just like regular stickers, only five times bigger!
11 3/4" x 2 7/8"

CDA members: \$.50
Non-members: \$1.00

BIG Bob - Special Order

And we mean BIG. He stands 5'3" tall. Put him in your waiting room and watch the big smiles he gets. This special order item will be made available if CDA receives sufficient orders.

CDA members: \$50.00

T-Shirt

One size—Extra Large.

CDA members: \$11.95
Non-members: \$23.95



Golf Shirt

Available in S, M, L, XL.

CDA members: \$26.95
Non-members: \$53.95

Sweatshirt

Also available in S, M, L, XL.

CDA members: \$29.95
Non-members: \$59.95





Balloons

Package of 50

CDA members: \$10.50/pkg.

Non-members: \$21.00/pkg.



Buttons

Package of 25

CDA members: \$9.00

Non-members: \$18.00

Celebration Planning Kit

For community organizers. This kit is brimming with ideas, activities and tips that will help you bring a Celebration of the Smile to your community this April!



Magnetic Bob

Such an *attractive* character! Give him to patients to stick on refrigerators and filing cabinets.

CDA members: \$.90

Non-members: \$1.80



Stickers

A perfect giveaway to young patients (and to the young at heart!) roll of 100

CDA members: \$7.00

Non-members: \$14.00



Appointment Cards

With the 5 Point Prevention Plan and space for the patient's next visit. Fits in their wallet.

Ask the CDA Order Section about personalizing these cards.

CDA Members: \$25.00 pkg. of 500

Non-members: \$50.00 pkg. of 500



Bob Live

New for Dental Health Month 1990! Bob is coming to life as a lovable full-size costumed mascot. He'll bring smiles and excitement to activities and events in your office or your community. For more information, contact your provincial dental association or the CDA.

Dental Health Month is a service of CDA's Dental Awareness Program, an ongoing campaign dedicated to helping all Canadians keep their teeth Good For Life.

Order your Dental Health Month materials today by mail or call our toll-free numbers.

1. By mail: Complete and mail the attached form along with your cheque, money order or VISA/MC number.
2. By phone: To place your order call:
1-800-267-6354 (Western Canada, Nfld. and Labrador)
1-800-267-6364 (Eastern Canada)
Please have your VISA or MasterCard number and expiry date ready.

Shipping: All orders will be sent by first class mail with prepaid shipping charges as follows: under \$29.99 = \$4.00; \$30.00-\$99.99 = \$6.00; over \$100.00 = \$10.00; over \$250.00 call our toll-free numbers for applicable charges.

Please print or type

Complete and mail to: **The Canadian Dental Association**

Order Section, 1815 Alta Vista Drive, Ottawa, Ontario K1G 3Y6

Name:

Address:

Suite #:

City:

Province:

Postal Code:

Telephone:

CDA Membership Number:

()

☐ Cheque / money order enclosed ☐ VISA ☐ MasterCard

Number:

Expiry date:

Item	Quantity	Price		Total
		Mem.	Non Mem.	
Bob Poster		1.00	2.00	
Buttons (Pkg. of 25)		9.00	18.00	
Super Stickers		0.50	1.00	
Stickers (Pkg. of 100)		7.00	14.00	
Display Card		0.60	1.20	
Celebration Poster		2.00	4.00	
Magnetic Bob		0.90	1.80	
Appointment Card (Pkg. 500)		25.00	50.00	
Balloon (Pkg. of 50)		10.50	21.00	
Display Balloon		9.75	19.50	
T-Shirt		11.95	23.95	
Sweatshirt* S M L XL		29.95	59.95	
Golf Shirt* S M L XL		26.95	53.95	
Radio Commercial		8.00	16.00	
Planning Kit		Free	Free	

Special Order (Only available if sufficient orders are received)

Display Bob		50.00	n/a	
				Sub Total
				Ontario residents please add 8% PST
				Shipping
				TOTAL

*Please circle shirt size
Please allow 4-6 weeks
for delivery



The production of this order form
has been sponsored by the
Canadian Fund for Dental Education.



**Brånemark
System™**

Authorized Dental Laboratory

Take Advantage of Our Implant Experience

From pre-treatment planning to final placement of the prosthesis we have the expertise and the knowledge to help you with your implant prescriptions.

Plus we offer more!

- sponsorship of a full range of local educational programs
- hands-on refresher courses on prosthetic techniques
- seminars featuring the leading speakers on the status of implants world-wide
- information on the latest BRÅNEMARK SYSTEM™ innovations
- convenient access to BRÅNEMARK SYSTEM™ prosthetic components

*Your local Authorized
BRÅNEMARK SYSTEM™ Dental
Laboratory - talk to us,
we're here to help*



**Aurum Ceramic Dental
Laboratories Ltd.**

Calgary 1-800-661-1169
Vancouver 1-800-663-1721

**Central Dental Laboratories (Barrie)
Limited**

Barrie 1-800-461-7559

Classic Dental Laboratories Ltd.

Ottawa 1-800-267-7040

E.J. Pow Laboratories Inc.

Woodstock 1-800-265-4052

Laboratoire Dentaire Morisset Inc.

Quebec (418) 529-9219

Laboratoire Dentec Inc.

Charlesbourg (418) 628-5039

Lafond & Marston Inc.

Outremont (514) 272-1158

Le groupe Dent-Esthérium

Ville St. Laurent (514) 744-4442

**Lindberg & Homburger Dental
Laboratories Ltd.**

Toronto 1-800-387-0092

Micro-Dent Laboratories Limited

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Pro-Art Dental Laboratory Limited

Toronto (416) 469-4121

R.A. Baillie Oral Ceramiques Inc.

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Rotsaert Dental Lab Ltd.

Hamilton (416) 527-1422

Shaw Group

Toronto 1-800-387-2696

**Tooth Tech Dental
Laboratories Inc.**

Mississauga (416) 273-7777

Ottawa 1990: Convention Countdown

On a Winning Track !



Ms. Sandra Piccolo-Lyren of Richmond, BC went to the 1989 CDA Convention, enjoyed it, and returned home a winner. She won two tickets to any destination serviced by Air Canada in Europe and North America. Dr. R.G. Baynes of Surrey, BC went to the 1989 CDA Convention, enjoyed it, and returned home the happy owner of a new Honda Civic. Dr. Max Florence of Toronto, Ontario was a delegate at the 1989 Convention and returned home as a lucky winner

of a Honda Scooter. Ms. Dee Lewis of Salmon Arm, British Columbia, Terry Horne of Edmonton, Alberta, Dr. D.K. MacKenzie of Fredericton, New Brunswick and Dr. Sukhwant Bajwa shared similar winning experiences.

This year - the 1990 Convention Committee is striving to ensure that **all** delegates attending the 1990 CDA Convention are winners! Winners in the sense that they will have shared in an experience designed to encourage future success in their professional lives. Although not every attendant will win a prize (of which, by the way, there will be several) — every delegate will return home after participating in an expanded scientific program...the CDA's biggest ever. And, as I have indicated in the past, I am very proud to have played a role in its development.

As you will discover by reading through the following pages, the entire dental team (and their family members) will face an exciting challenge - that of planning how they can best take advantage of the Convention Program. With more than 240 exhibit booths and over 40 lectures in the Scientific Program, delegates will undoubtedly have to make some choices.

In addition to great presentations and exhibits, the ever-popular table clinics will, once again, be a part of the program. Also, the Dentsply Student Table Clinics featuring winning presentations developed by students attending dental schools across the country, will be on hand. The students will meet and compete while sharing in the spirit of fun and learning.

The 1990 Convention Committee is actively working to finalize details for the Social, Spouses' and Children's programs. Under the able leadership of Elizabeth MacSween, D.D.S., the Social Program is shaping up to be a dynamic hit for all. The Spouses' and Children's Programs under the auspices of the Ottawa Dental Wives Association is headed by Marg Rowat and Mary-Margaret Webster. These programs will be geared to offer learning and fun in a cultural setting.

David Rogers, D.D.S. and Ian McConnachie, D.D.S. are busy adding the final touches to the Scientific Program while co-ordinating logistics for a convention program which will span the borders of four provinces.

Dale Scanlan, R.D.H. representing the Canadian Dental Hygienists' Association and Diane Pike, P.D.A. representing the Canadian Dental Assistants' Association are also working hard to ensure that the 1990 Convention Program meets the needs of their memberships.

And Exan, the software company that donated the convention management system last year, is busy upgrading and revolutionizing a convention system that was already the best on the market!

The Canadian Dental Association is totally committed to making its annual convention an important part of its membership benefits. All this, coupled with the dedication and commitment of corporate sponsors who continue to offer their support, encouragement and financial assistance is helping to ensure that **every** 1990 convention delegate will leave as a winner — and some, in more ways than one!

*Dr. Michel Jaliljah, D.D.S.
General Chairman
CDA Conventions*

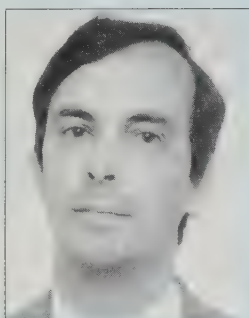


Jogging along the Rideau Canal, Ottawa, Ontario.
(Industry, Science and Technology Canada photo)

Ottawa 1990

1990 Pre-Convention Program Highlights

Five Super Courses!



Torsten Jemt, D.D.S., PhD.
Associate Head of Branemark Clinic
Gothenburg, Sweden

"Training Course on Osseointegrated Implants"

Hands-On

This course is designed to give prosthodontists and general practitioners knowledge about the prosthetic procedures of the Branemark System.

Topics to be addressed will include:

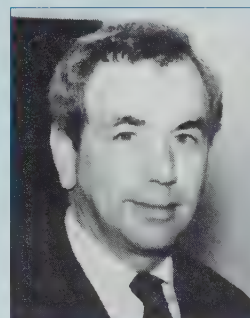
- Introduction and review of clinical and physiological problems associated with edentulism and partial edentulism.
- Presentation of conventional treatment concepts including comments on other implant systems.
- Review of the scientific background of the Branemark system including biological considerations, biomechanical aspects and technical engineering aspects.
- Brief overview of surgical procedures and presentation of surgical aspects of significance for prosthetic rehabilitation.
- Prosthetic treatment planning, patient selection, indications and contraindications.
- A detailed presentation of prosthetic, clinical and technical aspects covering various techniques and the use of different materials.
- Hands-on training that includes presentation of components, instruments and the different steps involved in the clinical treatment sequence.
- Presentation of patients in various stages of treatment including completed patients.
- Discussion of possible complications and how to handle them.
- Discussion of patient control and maintenance program including radiographical technique and computer possibilities in long term patient follow-up.

11-hour Course

Saturday – Full-day Lecture

Sunday – Hands-on

Enrolment limited to 40



Irvin A. Roseman, D.D.S.
Wilmington, North Carolina

"Endodontics for the 1990's"

Hands-On

This seminar will bring to the practitioner the principles necessary to perform predictable and effective endodontic therapy. Through step-by-step procedures, illustrations and case presentations which will encompass all current concepts in root canal therapy, the participants will easily be able to incorporate these techniques profitably and efficiently into their practice.

The course will include lectures to cover theoretical points on

- Diagnosis
- Instrument Length
- Instrumentation Complete
- Mast Cone Placement & Completion
- Follow-up
- Post & Core
- Trauma
- Bleaching & Restoring Endo Teeth

The hands-on participation will cover Molar Endodontics. Participants will have the opportunity to cleanse, shape and obturate canals using simulated tooth models. They will also be introduced to the use of the Endotec - a new technique-sensitive procedure.

Class size will be limited to 40 so each participant can be assured of individual attention and to maximize the learning experience.

**All courses complete to allow you to apply what you learn
the moment you return to your office!**

Ottawa 1990

1990 Pre-Convention Program Highlights

Five Super Courses!

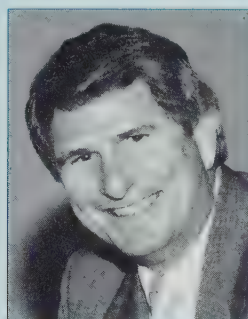


Dick Barnes, D.D.S.
Alpine, Utah

"Building a More Successful Practice"

Some of the topics that will be emphasized during the program are:

- Lowering stress and increasing satisfaction with dentistry as a profession.
- Staying in control of your practice by recognizing and supporting the responsibilities of your staff.
- Controlling your appointment book for maximum production. How to not be just busy, but busy and profitable.
- How to comfortably convince your patients to have the dentistry they need.
- Understanding patient behaviour, or what to say to "I'll think it over" patients.
- The pros and cons of dental advertising.
- Increase new patient flow despite increased competition.
- The art of case presentation - a step-by-step procedure for achieving acceptance of treatment each and every time.
- Financial arrangements you and your patient can live with.
- How to establish appropriate fees - and get them.
- How to double production with existing patients.



William Strupp, D.D.S.
Clearwater, Florida

"Predictable Anterior Crown and Bridge"

Clinical techniques leading to excellent and predictable esthetic results in anterior crown and bridge dentistry.

Topics covered during this pre-convention course will include:

- Tooth Preparations
- Tissue Management in Critical Cosmetic Zones
- Impression Procedures - How to NEVER Miss
- Total Hemorrhage Control
- Provisional Restorations by Staff with Perfect Fit/Function/Esthetics
- Materials/Equipment/Supplies Necessary to Do a First Class Job
- Soft Tissue Models for Soft Tissue Success
- Transmitting Esthetic Information to the Laboratory



Imtiaz Manji, B.Sc.
Vancouver, B.C.

"The First Step to High Tech"

Hands-On

Each participant will begin the seminar with an unassembled computer in front of them. Working from the ground up, Mr. Manji will explain computer technology in straight-forward, non-technical terms and guide the participant through assembly of their own computer.

Once the computers have been assembled, they will be powered up and Mr. Manji will continue his discussion about popular computer programs and dental practice management software.

As a participant, you will have an opportunity to see each of the programs discussed - from MS-DOS and Lotus 1-2-3 to sophisticated dental software with which you can record patient information and bill dental procedures. The seminar is assisted by five experienced computer users so everyone will have plenty of opportunity to get their questions answered.

4-hour Presentation
Enrolment limited to 20

**All courses complete to allow you to apply what you learn
the moment you return to your office!**

Ottawa 1990

Highlights of the 1990 Convention Program

Monday, August 27th

Allen Kincheloe, D.D.S.

Houston, Texas

"Esthetics for the 1990's"

The explosion of new technology and materials in esthetic dentistry makes it increasingly difficult for the dentist to stay current with the rapid changes and recent developments.

Topics will include: current restorative resin systems; finishing and polishing procedures; cosmetic contouring; posterior restorative techniques; successful repairs and marketing strategies.

CANADIAN FORCES DENTAL SERVICES 75TH ANNIVERSARY

Murray Cuff, D.D.S., M.R.C.D.(C)

Edmonton, Alberta

"Dental Management of the Medically Compromised Patient"

Practical and meaningful information for all dental practitioners with emphasis on true management of the medically compromised patient.

Topics will include: a wide range of cardiac maladies, respiratory disorders, arthritic conditions, hormonal dysfunctions, gastrointestinal diseases, neuropathies, and the effects of chemotherapy and radiation treatment.

Tom Harle, D.D.S., DIP (Prosth.)

Toronto, Ontario

"Osseointegration and the Rehabilitation of Partial Edentulism: Clinical Aspects"

A wide range of clinical considerations and strategies to deal with partial edentulism using implant supported fixed partial prostheses will be presented.

Topics will include: the latest in hardware and techniques; important diagnostic parameters in patient selection; status of the immediate placement of implants into extraction sites; joining of natural teeth to implants; and the prosthetic and laboratory "art" of implantology.

Paul Demers, D.D.S., M.Sc.

Halifax, Nova Scotia

"An Approach to the Management of Oral and Maxillofacial Infections"

A look at the recent explosion of information on pathogenesis and management of infections.

Topics will include: a review of the pathogenesis and microbiology of infections; a review of antimicrobial agents useful in the treatment of maxillofacial infections.

Mark Matthews, B.Sc., D.D.S.

Halifax, Nova Scotia

"Surgical Correction of Dentofacial Deformities"

Dr. Matthews will discuss the evaluation, treatment planning and surgical correction of a wide variety of dentofacial deformities.

Topics will include: basic surgical approaches; surgical prosthetic approaches and surgical /orthodontic correction of various malocclusions.

Ottawa 1990

Highlights of the 1990 Convention Program

Monday, August 27th (continued)

Franklin Weine, D.D.S., M.S.D.

Chicago, Illinois

"What's New in Endodontics"

For many years, very little was new in endodontics. Suddenly there is a plethora of changes, some good and beneficial whereas others are poor and potentially deleterious.

Topics will include: new hand and mechanical instruments; the use of ultrasonics; five types of thermoplastic gutta-percha delivery systems and predictions for other new products and techniques.

Ronald Feinman, D.M.D.

Atlanta, Georgia

"Porcelain Laminates - A Seven Year Update"

Etched porcelain laminates have become a viable alternative to the more extensive full-crown preparation and the problematic direct composite resin bonding. These etched types of porcelain restorations are among the most predictable and effective ways of restoring esthetic and functional dental problems with little or no destruction of tooth substance.

Topics will include: up-to-date information of porcelain laminates; etched porcelain pieces; inlays and onlays; porcelain bridges; esthetic practice management; computer imaging; financial and legal considerations and the roles of other dental team members in building esthetic practice.

"Chemical Alterations of Enamel Color - The Bleaching Boom"

Vital bleaching of stained and discolored teeth has been so simplified, that now it is being used as an every day esthetic method in the day-to-day practice.

Topics will include: in-office bleaching; at-home passive bleaching and chemical removal of problem stains.

Tom Limoli, D.D.S.

Atlanta Georgia

"Overview of Third Party Dental Care"

Attendees will be provided with an overview of general dentistry and the preparation of insurance claim forms for carriers as they may involve fraud in general dentistry.

Topics will include: over-utilization; fee billing inaccuracies; discounts and misrepresentations; requests for work not performed; annual/fiscal year overlaps and the "final" treatment x-ray.

Maureen Locherer, P.D.A.

Ottawa, Ontario

"Equipment Maintenance"

Care of dental equipment in the sterilization area, operatories and laboratory are of prime importance. Knowledge of the equipment, its capabilities and limitations will ensure effective usage.

Topics will include: care of lathes, trimmers, motors, sterilizers, x-ray processors, suction, prophylaxis jets and many, many more.

Marion Balla, M.Ed., M.S.W.

Ottawa, Ontario

"Effective Communication Between Staff and Clients in the Dental Environment"

Effective communication involves both talking and listening with understanding, empathy and direction.

Topics will include: open vs closed communication; verbal vs non-verbal communication; barriers to communication; "active listening" as a skill to enhance relationships; "I" messages as a skill in open communication.

Ottawa 1990

Highlights of the 1990 Convention Program

Monday, August 27th (continued)

John Hardie, B.D.S., M.Sc., F.R.C.D.(C)

Ottawa, Ontario

"An Update on Infection Control"

Infection Control continues to generate interest and controversy and the future of general practice will be influenced by the need to prevent the real and perceived transmission of disease in the dental office.

Topics will include: review of disease transmission principles; disposal of waste products; new infection control products; treatment of AIDS patients.

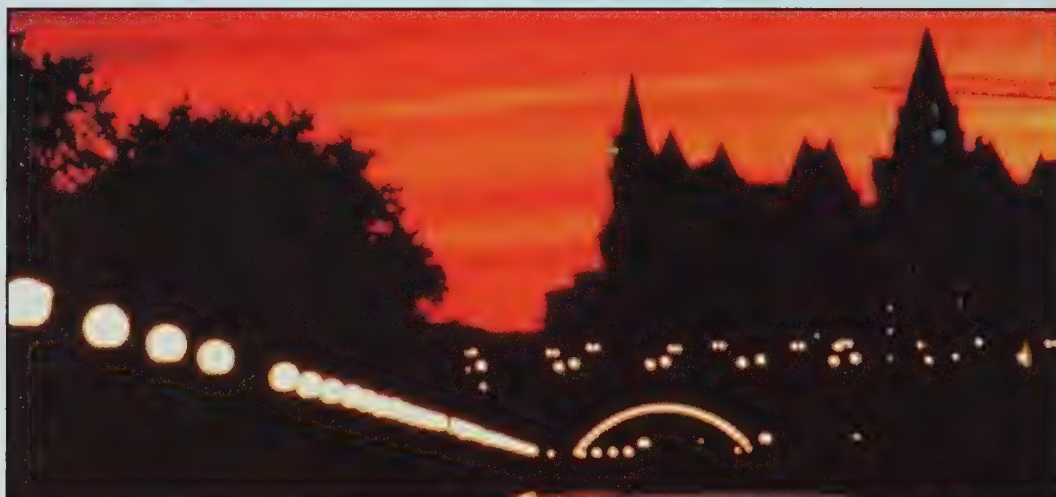
Lendon Smith, M.D.

Portland, Oregon

"Nutrition to Control Stress"

The perception of stress may be more important than the source or the degree of the stress or distress.

Topics will include: discussion of the appropriate diet to maintain the blood sugar at a working level; how to make all the enzyme systems work optimally; toxins in the air and water; genetic factors influencing health; how to survive robustly, cheerfully and comfortably until you are 80, 90 or 110 years old.



An Ottawa sunset.
(Industry, Science and Technology Canada photo)

Tuesday, August 28th

Dianne Rekow, M.S.M.E., D.D.S., Ph.D.

Minneapolis, Minnesota

"CAD/CAM Systems: The Technology"

Computer-aided design and computer-aided manufacturing provide some new possibilities for creating the equivalent of cast restorations.

Topics will include: a general overview of the technologies that are incorporated into the development of three of these systems; comparisons between various systems; advantages and disadvantages of each of the three systems.

Ottawa 1990

Highlights of the 1990 Convention Program

Tuesday, August 28th (continued)

William Bottomley, D.D.S., M.S.

Potomac, Maryland

"An Update on the Drugs Your Patients Take"

Topics will include: a review of the more common drugs prescribed; the influence of the medical conditions being treated upon dental treatment planning.

Glen McGivney, D.D.S.

Buffalo, New York

"A Systematic Approach to Treating the Partially Edentulous Patient"

There are 191 possible errors that can cause a removable partial denture to fail or be injurious to a patient.

Topics will include: a review of most of those that are operator oriented; suggest ways to intercept or correct these errors; a systematic approach to designing your removable partial denture through a video presentation.

Ralph Phillips, M.Sc., D.Sc.

Indianapolis, Indiana

"Dental Materials I and II"

The "scientific claims" of various manufacturers can be contradictory and often confusing to the clinically oriented practitioner.

Topics will include: dentin bonding; use of composites in stress bearing areas; different types of glass ionomer cements; luting cements; selection and use of the various restorative materials that can immediately be incorporated in dental practice for the benefit of both the dentist and the patient.

Imtiaz Manji, B.Sc.

Vancouver, British Columbia

"High Tech Practice Management"

Advances in technology such as video imaging, laser technology, intra-oral cameras and milling machines are changing the way dental practices operate. By efficiently exploiting new developments, dentists are able to realize significant increases in practice productivity.

Topics will include: staying ahead of technology; keeping a choke hold on costs; being financially creative; maximizing the effectiveness of your marketing and adding a touch of class.

Tom Limoli, D.D.S.

Atlanta Georgia

"Periodontal Problems with Prepayment"

Topics will include: fraudulent periodontal claim submissions; co-ordination of benefits - medical or dental; grouping multi-services for a single "package" fee; increasing submitted fee to compensate for forgoing co-insurance portion of total fee; classification of periodontal case types.

Maureen Locherer, P.D.A.

Ottawa, Ontario

"Sterilization Techniques"

A review of bacteria, spores and the transmission of diseases.

Topics will include: Hepatitis B and AIDS; methods of sterilization and disinfection.

Ottawa 1990

Highlights of the 1990 Convention Program

Tuesday, August 28th (continued)

Marion Balla, M.Ed. M.S.W.

Ottawa, Ontario

"Stress Management in Personal Relationships"

Stress is a fact of life, however, the extent to which we let stress control our actions can affect our work performance and sense of self-satisfaction.

Topics will include: stress as both a positive and negative influence in our lives; personal vulnerabilities to stressors which may lead to distress; evaluation of personal stress levels through paper/pencil exercises; specific stress management techniques - time management, shoulds vs coulds, wants, success logs.

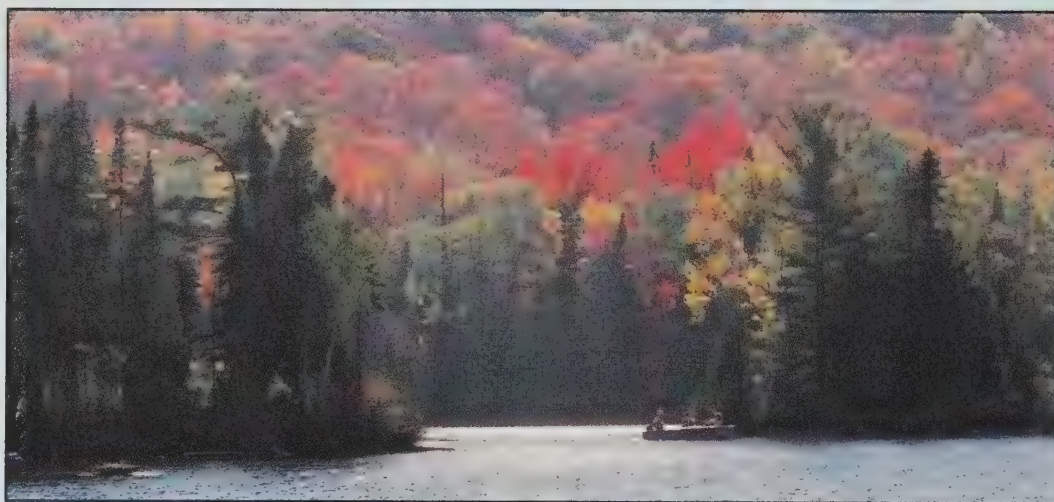
Franklin Weine, D.D.S., M.S.D.

Chicago, Illinois

"Preparation of Curved Canals"

Canal preparation in canals with curves of greater than 30 degrees requires techniques not needed when treating less complex cases.

Topics will include: methods for safely enlarging and cleaning these very difficult canals.



Gatineau Park, Hull, Québec.

(Industry, Science and Technology Canada photo)

Wednesday, August 29th

Matthias Hourigan, D.D.S.

Kansas City, Missouri

"A 'Bread and Butter' Office Oral Surgery Review"

Over 50 million teeth will be sectioned, surgically removed or extracted this year. Much of this surgery can be done efficiently by the general practitioner, with reasonable cost to the patient.

Topics will include: some of the basic surgical procedures using local anesthesia; time-tested clinical tips on how to prevent surgical misadventures; how to manage complications should they accidentally occur.

Ottawa 1990

Highlights of the 1990 Convention Program

Wednesday, August 29th (continued)

William Bottomley, D.D.S., M.S.

Potomac, Maryland

"Diagnosis and Treatment of Common Oral Lesions"

Topics will include: review of the more common oral lesions with emphasis on possible etiologies, contributing factors and how to distinguish similar lesions from each other on a clinical basis; a practical treatment and the rationale for each entity will be suggested.

Dianne Rekow, M.S.M.E., D.D.S., Ph.D.

Minneapolis, Minnesota

"CAD/CAM Systems: Challenges and Possibilities"

CAD/CAM Systems under development promise to revolutionize dentistry. During the development of these systems, a number of interesting challenges to the technology arose. One of these is the issue of what quality of fit at the margin is really needed? a number of others also exist. These will be discussed and the resolution with the automation described.

With the automation, a number of exciting possibilities for dentist, laboratory technician and patient are created. Among these is the possibility of the equivalent of a cast restoration — within an hour of the time that the tooth was prepared. This and other possibilities with the automation will be addressed.

Glen McGivney, D.D.S.

Buffalo, New York

"Common Complete Denture Problems: Cause and Solution"

Common complaints from denture patients can often be traced to technical problems associated with contour, extension, vertical dimension, occlusion, esthetics or tooth arrangement.

Topics will include: how to solve the problem and not just ease the pain; a simple checklist which will provide an easy means to systematically solve complaints stemming from technical problems.

The following speakers will be featured in future issues of the CDA Journal:

**Norman Levine, D.D.S.,
M.Sc.D., F.R.C.D.(C)**

Toronto, Ontario

**Dentistry for
the Disabled**

**Lendon Smith,
M.D.**

Portland, Oregon

"Humour as a Healer"

**Vanik Jinoian,
O.D.T.**

West Germany

**New Ceramic
Bridge**

**Stéphane Schwartz,
D.D.S., M.S.D.**

Montreal, Quebec

Pedodontics

**Matthias Hourigan,
D.D.S.**

Kansas City, Missouri

**"Camera Clinic for Slide
Shooters"**

**Annette Ashley Linder,
R.D.H., B.S.**

Richmond, Virginia

"Soft Tissue Management"

**Joseph Chasteen,
D.D.S., M.A.**

Seattle, Washington

**"The Joy of Four-Handed
Dentistry"**

**Harry Rosen, D.D.S.,
M.R.C.D.(C)**

Montreal, Quebec

Geriatrics and Dentistry

Some of the speakers participating in the French Program to be featured in future issues of the CDA Journal:

**Léon Lemian,
D.D.S., M.S.D., M.R.C.D.(C)**

Montréal (Québec)

L'endodontie

**Stéphane Schwartz,
D.D.S., M.S.D.**

Montréal (Québec)

La pédodontie

**Huan Pham,
D.D.S., M.S.**

Montréal (Québec)

La chirurgie buccale

**Jacinthe Larivée,
D.M.D., M.R.C.D.(C)**

Montréal (Québec)

La périodontie

1990 CANADIAN DENTAL ASSOCIATION CONVENTION

August 25 - 29, 1990 • Ottawa, Ontario



Hotel Reservation Form

Please check appropriate category:

☐ Dentist ☐ Hygienist ☐ Assistant ☐ Exhibitor ☐ Office Personnel ☐ Other (please specify) _____

Name: _____

Address: _____

City: _____ Province: _____ Postal Code: _____

Telephone: () ()
(Residence) (Office)

Type of Room:

☐ Single ☐ Double ☐ Twin ☐ Other (please specify) _____

Indicate first three hotel choices (by numbering the boxes):

- ☐ Westin Hotel (CDA Headquarters) \$ 115.00 single / double
☐ Château Laurier Hotel \$ 112.00 single / double
☐ Four Seasons Hotel \$ 110.00 single / double
☐ Novotel \$ 89.00 single / double
☐ Minto Place Suite Hotel \$ 99.00 single / double

Arrival Date: _____

Departure Date: _____

Arrival Time: _____

In order to reserve a room, a guarantee for the first night is essential. The guarantee will apply to the first night ONLY. To cancel your reservation advise the CDA at least three (3) days prior to your arrival.

☐ MasterCard ☐ American Express ☐ VISA

Card Number: _____

Expiry Date: _____

Signature: _____

Send Reservation Form to:

CDA Conventions
Canadian Dental Association
1815 Alta Vista Drive
Ottawa, Ontario
K1G 3Y6

DEADLINE for Reservations: July 10, 1990

CANADIAN DENTAL ASSOCIATION CONVENTION

Ottawa • August 25 - 29, 1990

ADVANCE REGISTRATION FORM - Please PRINT

With the computerized registration system, it is *essential* that each registrant fill out a separate form. To ensure your requests are accommodated - *register early*. Advance registrations will be accepted until July 10, 1990 after which they will be returned to the sender. Each on-site registration will be subject to a \$25.00 administrative fee.

SURNAME: FIRST NAME: SEX: M F

ADDRESS: (Street) (City) (Province)

TELEPHONE: () () (Residence)

(Postal Code) (Office) License Number:

CDA Membership Number:

PRE-CONVENTION • AUGUST 25, 26 • Limited Attendance

SATURDAY, AUGUST 25

William Strupp, D.D.S. - CROWN & BRIDGE - Lecture

Dentist \$ 160.00
Staff \$ 70.00

Intiaz Manji, B.Sc. - COMPUTERS - Hands-on Program

Dentist (limited attendance) \$ 160.00
Staff (limited attendance) \$ 90.00

Irvin A. Roseman, D.D.S. - ENDODONTICS - Hands-on Program

Dentist (limited to 40) \$ 200.00

SUNDAY, AUGUST 26

Dick Barnes, D.D.S. - PRACTICE MANAGEMENT - Lecture

Dentist \$ 160.00
Staff \$ 70.00

Torsten Jemt, D.D.S., Ph.D. - IMPLANTS - Hands-on Program

• TWO-DAY COURSE: SATURDAY AND SUNDAY •

Dentist (limited to 40) \$ 350.00

CONVENTION • AUGUST 27, 28, 29

☐ DENTIST

Member, CDA Nil
Non-member, Others \$ 145.00

Includes: Scientific sessions and exhibits

☐ DENTAL HYGIENIST

CDHA Member \$ 65.00
Non-member \$ 95.00

Includes: Scientific sessions and exhibits

☐ DENTAL ASSISTANT

CDAA Member \$ 65.00
Non-member \$ 95.00

Includes: Scientific sessions and exhibits

☐ TECHNICIAN \$ 65.00

Includes: Scientific sessions and exhibits

☐ ADMINISTRATIVE PERSONNEL \$ 65.00

Includes: Scientific sessions and exhibits

☐ STUDENT ☐ Dentist ☐ Hygienist ☐ Assistant Nil

Includes: Scientific sessions and exhibits

☐ ACCOMPANYING PERSON/SPOUSE \$ 95.00

Includes: Scientific sessions, exhibits and Spouses' Program.

☐ CHILD \$ 50.00

Includes: Access to convention and Children's Program.

☐ SOCIAL EVENTS

Sunday - Opening Ceremony - Subject to space availability

Will attend ☐ Yes ☐ No Nil

Monday - President's Gala Evening (per person) \$ 45.00

Tuesday - Meet & Greet Evening

Will attend ☐ Yes ☐ No Nil

LUNCHEONS - Reserved seating

Monday \$ 20.00

Tuesday \$ 20.00

☐ FUN RUN

Monday A.M. \$ 15.00

TOTAL \$

The above registration fees are paid by

☐ I wish to pay the above total by credit card: ☐ MasterCard ☐ VISA ☐ AmEx

Card#: Expiry date:

Signature of Cardholder:

☐ I enclose a cheque payable to the Canadian Dental Association.

Post-dated cheques will *not* be accepted.

Cancellation Policy:

- Cancellations received in writing on or before July 16, 1990 - full refund
- Cancellations after July 16, 1990 - subject to a 25% administrative charge
- No refund after August 10, 1990

Mail registration form with payment to:

1990 CDA Convention
1815 Alta Vista Drive
Ottawa, Ontario
K1G 3Y6

Dentists, Assistants, Hygienists, Office Personnel & Technicians registering by July 10, 1990 will be eligible to win two tickets anywhere Air Canada flies in Europe and North America!

Ottawa 1990

Table Clinics

Table Clinics are defined as a brief table top presentation or demonstration of five to ten minutes duration using visual aids, and repeated over a 2 1/2 hour period.

Those interested in presenting, write to:

TABLE CLINICS
CDA Conventions
1815 Alta Vista Drive
Ottawa, Ontario
K1G 3Y6

Vaccination Clinic

**Engerix[®]-B
Hepatitis B vaccine
(recombinant)**

With the cooperation of Smith Kline and French, a vaccination clinic against the Hepatitis B virus will be offered to dentists, hygienists, assistants and technicians at a special rate for CDA convention participants.

The 3-dose program includes the injection of a first dose on site and the mailing of the 2nd and 3rd doses after the convention.

If you have already been vaccinated, the National Advisory Committee on Immunization feels that a booster dose after 5 years may be prudent.

ON SITE REGISTRATION ONLY.



Historic Parliament Hill — as seen from across the Ottawa River, from Hull, Québec.
(Industry, Science and Technology Canada photo)

Ottawa 1990

Spouses' Program

Tentative Program:

Monday, August 27

AM

"Humour as a Healer"

Lendon Smith, M.D.,
a.k.a. "The Children's Doctor"

12 Noon

Luncheon

PM

"Nutrition to Control Stress"

Lendon Smith, M.D.

In addition, in the afternoon, you may elect to discover Ottawa on an organized sightseeing tour.

Tuesday, August 28

AM

Walking tour — Sussex Courtyards / Byward Market
(including a visit to the new National Gallery)

12 Noon

Luncheon

PM

"Parenting"

Marion Balla, M.Ed., M.S.W.

Children's Program

Two Days Balancing Learning, Discovery and Fun !

The 1990 Children's Program will focus on the capital's newest landmarks. Organized visits to the recently renovated National Aviation Museum and Museum of Science and Technology will be included. In addition the children will have an opportunity to discover Canada's heritage at the Canadian Museum of Civilization located on the shores of Ottawa's sister city – Hull, Québec.



Ottawa 1990

Social Program

Sunday, August 26

Opening Ceremony

The Opening Ceremony is fast becoming a tradition at the CDA's Annual Convention. It's an event that strives to set the mood for four and a half days of learning and discovery.

This year the Opening Ceremony will combine the sights and sounds of 'capital' quality. Although the exact program is still under wraps we will soon be able to disclose details.

Last year we were overwhelmed by the attendance figures at the Opening Ceremony. More than 3,000 delegates were in attendance. To avoid disappointment – register early and indicate your wish to attend the Opening Ceremony on your registration form. **Space is limited.**



Monday, August 27

President's Gala

Last year, in Vancouver, more than 600 convention delegates attended the 'Black & White' extravaganza – the formal dinner/dance was a highlight of the 1989 Convention. This year's formal evening will once again combine style and class to create a 'capital' event.

The 'President's Gala' will be an evening of elegance, sure to attract individuals who appreciate life's finest. Exquisite dining and dancing to the sounds of a big-time band will be highlights of this evening to remember. Don't miss it!



Tuesday, August 28

Meet and Greet Evening

An informal evening to dance and socialize. The 'Meet and Greet' evening will provide convention delegates with the perfect opportunity to meet new friends and greet old acquaintances. There'll be live entertainment, a cash bar and a dance floor! So – pack your dancing shoes and get ready to boogie in Canada's capital.



Ottawa 1990

How to register for the CDA Convention

Filling out Your Registration Form

1. Register early, some courses and events have limited attendance.
2. There is only one registration form to be used by all categories of participants.
3. Use one form per person (photocopy for several registrants).
4. Spouses and children should have a separate form for each individual.
5. Total the dollar amount of activities and courses you plan to attend, and either provide the necessary credit card information or make cheque payable to the Canadian Dental Association.
6. If your payment covers the cost for several registrants, your name or company name should be clearly indicated in the appropriate space on each registration form.
7. If hotel accommodation is needed, fill out the hotel reservation form.
8. If travel arrangements are needed, call Air Canada Convention Central for the best rates and services.

Filling out Your Hotel Reservation Form

1. Reserve early. August is a very busy month in Ottawa. We have negotiated for you the best rates possible at many of Ottawa's luxury hotels, but hotel rooms are limited in number.
2. CDA is handling the hotel reservations in house, so you will not be able to reserve directly with the hotel.
3. Use one reservation form per room.
4. Your reservation will be confirmed by the hotel.
5. You must guarantee your room for the first night by providing credit card details. The information you provide will remain with the hotel until your scheduled date of arrival – only then will the hotel credit your account.
6. Any further changes to reservations should be made through CDA headquarters.

Making your Your Airline Reservations

Air Canada has been appointed the sole official carrier for the Canadian Dental Association 1990 Annual Convention in Ottawa. Special arrangements have been made with Air Canada to offer convention participants discounts on air fares. To take advantage of this service, you must call Air Canada's Convention Central when booking your tickets (your travel agent can call on your behalf). Dial **1-800-361-7585**. The Convention Central hotlines are open **weekdays, 8:30 a.m. to 8:00 p.m. EST/EDT**. Identify yourself and the CDA convention. Air Canada's convention experts will do the rest. The lowest fare available will be confirmed to you, subject to availability and advance purchase conditions.

Fly Canada's #1 Convention Airline to the 1990 CDA Convention in Ottawa, and SAVE. Through Convention Central, you also have the opportunity to save on car rentals. Ask for details when booking your flight. The Convention Central staff are eager to help in any way.

Not to be overlooked, Air Canada has graciously offered two economy class return tickets good for travel on any Air Canada serviced destination (except Bombay and Singapore). This will be the prize awarded in our Advance Registration Draw. To be eligible for the draw, dental team members must register for the convention before July 10, 1990.

See you in Surprising Singapore!

**This Year the 78th
F.D.I. CONGRESS**

is to be held in
exotic SINGAPORE,
September 8th-14th 1990.

We extend an invitation
to all our colleagues and
their spouses to join us
at the Conference.

Reserve your seats early! Space is limited.

**OFFICIAL TRAVEL HANDLERS
IN CANADA**

The Canadian Dental Association takes
pleasure in appointing Toronto based
TourCan to handle all members travel
and accommodation for the complete
congress and extension tours.

We recommend that you book early.

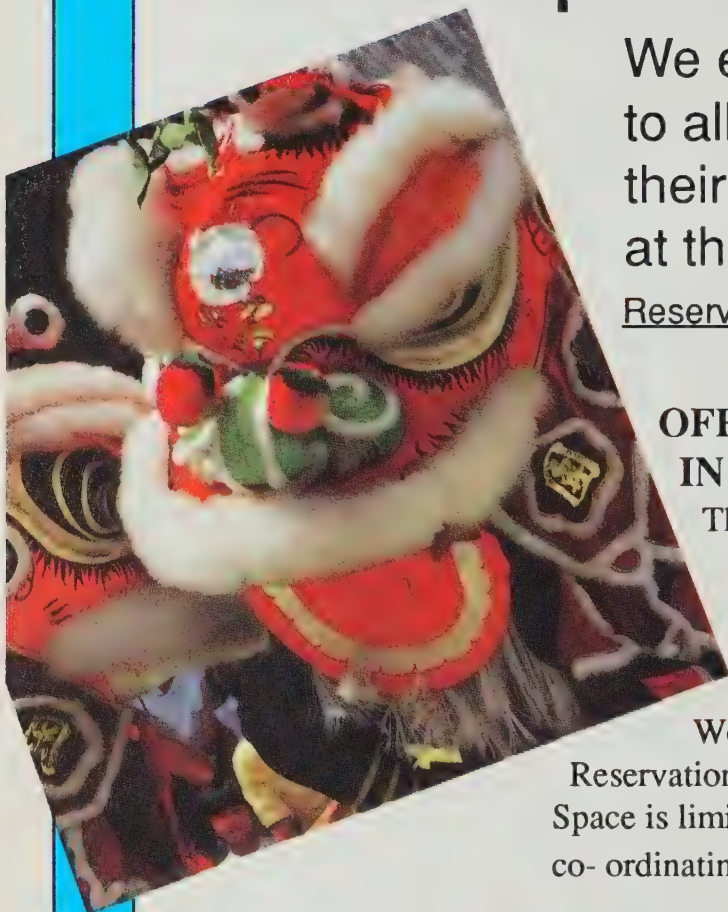
Reservation deadline for all tours is June 1st, 1990.
Space is limited. We appreciate your support in
co-ordinating your requirements through TourCan.



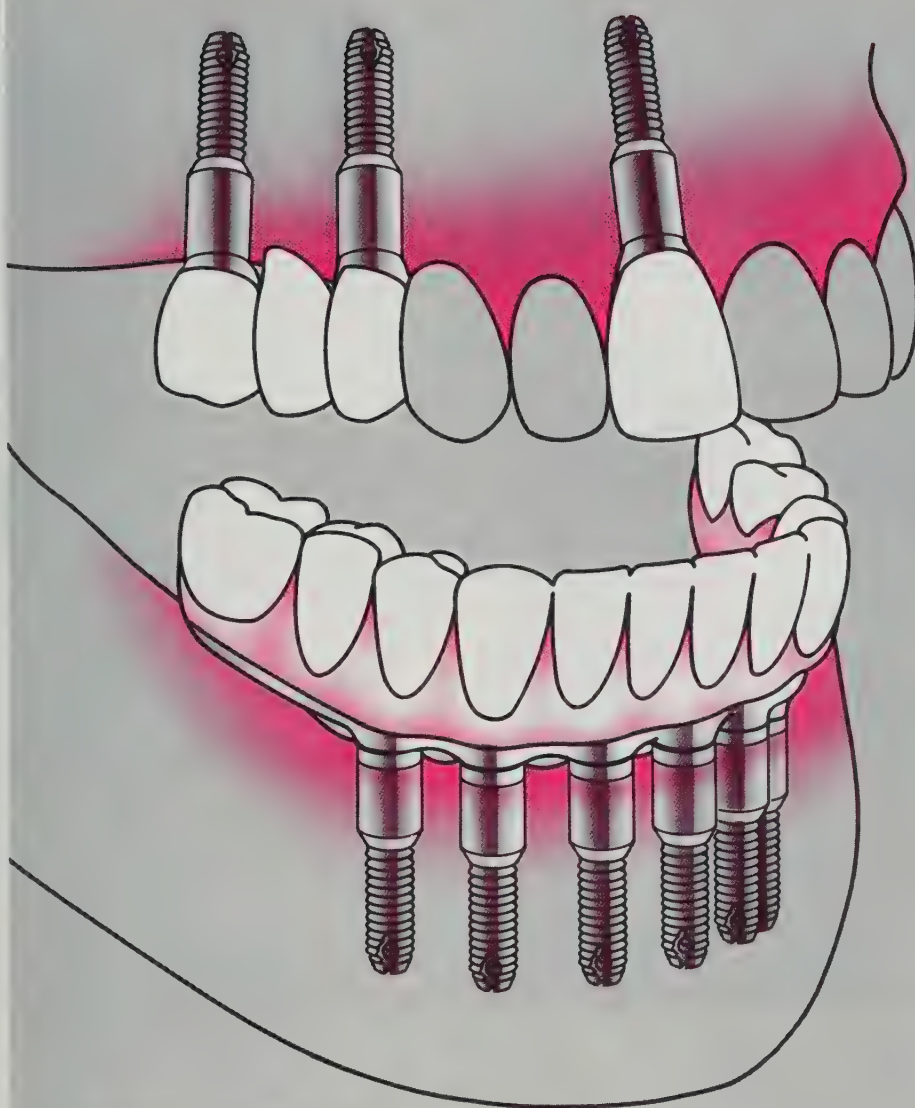
TourCan Inc.

Your Partner in Quality

To enquire or reserve your space
CALL TOLL FREE ACROSS CANADA 1-800-263-2995
IN TORONTO (416) 787-0334



THE FUTURE IS NOW...



and NOW begins with OSI!

Over 5000 Dentists have chosen Osseointegration Seminars Inc. (OSI) for comprehensive osseointegrated implant prosthetic training.

The OSI CONCEPT is designed to provide the surgical/restorative team with the case diagnosis, treatment planning and "hands on" experience to successfully rehabilitate both the partially and fully edentulous patient.

The restorative training for the OSI Basic and Advanced Courses focus on the Branemark System... a proven endosseous system.

Yet, regardless of the implant system you choose, the OSI CONCEPT is essential for developing and integrating a treatment planning philosophy for all of your implant cases.

Take advantage of the combined experience of two of today's leading authorities in osseointegrated prosthetics...and take your practice into the future NOW!

Course Schedule 1990

Basic Course (\$850)

January 26-27.....Univ. of Pennsylvania, PA
February 25-28.....(Ski Course) Snowbird, UT
March 16-17.....San Francisco, CA
September 15-16.....Seattle, WA
October 19-20.....New York, NY
November 16-17.....Cleveland, OH

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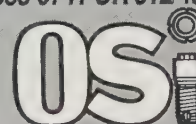
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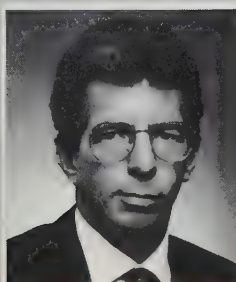
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Dental Phobia

La peur du dentiste

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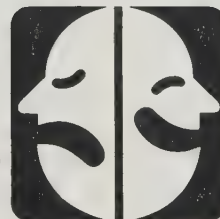
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PERIODONTAL CONTROL: AN EFFECTIVE SYSTEM FOR DIAGNOSIS, SELECTION, CONTROL & TREATMENT PLANNING IN GENERAL PRACTICE

A.M. Grace
F.C. Smales

1989, Quintessence Publishing Co., Inc.
144 pages, \$32.00 US

This "cook book" on the diagnosis of periodontal disease is authored by two British Periodontists. It is their goal to develop a flexible system of periodontal diagnosis that has some scientific basis and can be used in general practice. Furthermore it will give some justification for fees that can be assessed according to the British Health Care Scheme.

They credit two recent developments which have enabled them to produce an index that can define periodontal treatment. (1) the development of The Community Periodontal Index of Treatment Needs (CPITN) by the World Health Organization and (2) the publication by the British Society of Periodontology of a policy statement.

Their "cook book system" is called the Periodontal Control System and involves the collection & recording of numerous periodontal indices i.e. bleeding on probing, calculus or overhanging restorations, periodontal pockets, plaque & mobility. They have developed a very elaborate chart for recording and monitoring changes in these parameters. Furcation involvements, mucogingival involvements are somewhat overlooked in this system, as are mention of restorative needs, endodontics or good radiographic analysis.

Utilizing these indices, they categorize patients into five categories and attempt to recommend treatment as well as follow up care. In the more involved cases they discuss in great generality occlusion, types of surgery, mucogingival involvements, juvenile periodontitis, antibiotics, but all in a much too superficial manner compared to the details of setting up the Periodontal Control System.

In reviewing this book I was initially encouraged that someone had addressed a system, to be used in general practice, which is used to monitor long term periodontal status. I think that if the book had ended there it would have been more valuable. Unfortunately I think that their

attempt at treatment planning from this system leaves too many variables that have not been thought out. Δ

*This book was reviewed by:
Dr. Gary Hyman BSc, DMD, Dip.
Periodontology
Private Practice in Periodontology
Winnipeg, Manitoba*

QUALITY EVALUATION OF DENTAL RESTORATIONS: CRITERIA FOR PLACEMENT AND REPLACEMENT

by Kenneth Anusavice

1989, Quintessence Publishing Co., Inc.,
Chicago
424 pages, color photographs, \$96.00

This book consists of the proceedings of the International Symposium on Criteria for Placement and Replacement of Dental Restorations which was held in October 1987. It is a collection of twenty-five papers which had been presented at the meeting and attempts to relate clinical decision-making to existing scientific data on this subject. In addition to the papers, brief discussion sections are included which contain the questions which arose and the discussion following the presentation of each paper at the symposium. The book concludes with four sections which summarize the meeting: Summary Statements, Criteria for Restoration Placement and Alternative Treatment, Criteria for Restoration Replacement, and Research and Educational Recommendations.

In the preface, the editor introduces the problem which initiated development of the Symposium, and ultimately the book, that many dental restorations are removed because of the macroscopic appearance of the margins alone with no sound evidence of the existence of caries. He charges that dentists are introduced to this practice as students and that it persists throughout their professional lives. An original goal of the Symposium was to identify the "true longevity" of restorations and determine the main causes of failure.

The papers, which were prepared by prominent researcher-clinicians, are well referenced with well reproduced illustrations. They cover a wide range of topics in the following areas: reliability of caries diagnosis, bacterial leakage versus microleakage, classification of patient risk, variability of the decision-making process, pulpal response to dental materials

and microorganisms, material allergies, assessment of restoration quality, criteria for selection of restorative materials, insurance considerations, and analysis of cost versus longevity of various restorative procedures. The papers provide an interesting presentation and evaluation of existing research data. There is recurring scientific documentation which supports the Editor's accusation in the preface that the diagnosis of dental caries is unreliable and that restorations are being replaced for purely subjective reasons.

Unfortunately, while the problem is more than adequately identified throughout the papers and re-emphasized in the Summary Statements, no detailed solutions are offered. The Criteria for Restoration Placement and Alternative Treatment as well as the Criteria for Restoration Replacement sections are both very general despite their specific titles. However, this could be more of a personal disappointment rather than a legitimate criticism since there was a statement made in the preface that the intention of the concepts and criteria was that they serve as a foundation for the continuing development of well-defined criteria for dental care.

This book raises some important questions regarding the philosophy of restorative dentistry practices related to existing scientific data but presents only generalized guidelines for the practicing clinician. This opinion appears to be supported by a statement in one of the discussion sections which alludes to an earlier criticism of the clinical relevancy of the materials presented at the conference. However, the material does present realistic implications for education and practice. This book is probably more useful to the educator and researcher, but the scientifically oriented practitioner should also find it interesting and informative. Δ

*This book was reviewed by:
Dr. K.W. Hinkelman
Professor and Chairman
Department of Restorative Dentistry
University of Alberta*

GLASS IONOMER CEMENT

by Alan D. Wilson and
John W. McLean

1988, Quintessence Publishing Co., Inc.
Chicago
274 pages, Colour illustrations

This excellent book by the scientist and the clinician who first developed this cement provides complete coverage of

both the theoretical and clinical aspects of glass ionomer cements. More than half the book is devoted to a step by step presentation of the clinical procedures used to place glass ionomer restorations. Some of the topics covered are Class III and Class V and tunnel restorations, fissure sealing, laminate restorations, luting with glass ionomer and restoration of primary and posterior teeth. The techniques are clearly described and richly illustrated. A quick review of the scientific basis of each clinical point is provided at the appropriate place.

Key clinical and scientific concepts are repeated for each treatment technique. For those reading the book straight through, this redundancy is very tedious. However, for those using the book as a quick reference, perhaps at chairside, it is an invaluable feature. The information on finishing is scattered over several different topics. This disjointed presentation requires a more intensive reading than should be required in a text which will be used as a chairside reference.

The clinician could limit his reading to the technique section of the book and still gain a useful amount of theory to enhance his clinical expertise. Should greater knowledge be desired, this section is crossreferenced to the first section. The first section presents a very complete review of the development and characteristics of these cements. Chapters in this section include composition, properties, setting reactions, esthetics, adhesion and biocompatibility. The clinical implications of the cement's characteristics are emphasized throughout.

In conclusion, this is an excellent text for the novice using these cements for the first time, for the experienced operator who wants to refine his technique and for the researcher requiring a concise, scientifically sound overview of the cement's characteristics.

This book was reviewed by:
Dr. Peter Williams
Associate Professor and Head
Section of Dental Materials Science
University of Manitoba

CONTEMPORARY DENTAL HYGIENE PRACTICE: VOLUME ONE

**Patricia Phagan-Schostok and
Karen Maloney**

Quintessence Publishing Co. Inc., 1988.
Textbook 205pp
Laboratory manual 239pp

This publication consists of both a text and a laboratory manual covering aspects of professional functioning of dental hygienists. The authors have indicated in the preface that volume two will follow this volume. Volume one text is divided into three parts which are then subdivided into twelve chapters.

Part One is entitled Preliminary Procedures and covers sterilization procedures, occupational health hazards, health assessment and documentation, extraoral and intraoral examinations and preparation for emergencies. Supplemental examination procedures such as study models and dental photography are also included in this part. These topics are thoroughly discussed and all information is current. The text in part one is supplemented well with clear intraoral photographs particularly in the sections on intraoral and extraoral examination.

Part Two outlines information on formulating and implementing a treatment plan. The importance of individualizing a treatment plan is emphasized, as well as special considerations such as diabetes, epilepsy, and cancer. This section did not emphasize the importance of a comprehensive approach to treatment planning and methods of preparing a thorough treatment plan were not included. These topics are important for a dental hygiene student to understand in order that she/he can participate with other members of the dental team in planning and implementing patient care. A very interesting and useful chapter was included in part two which explained how sequencing of scaling procedures, operator and patient positioning, proper use of the overhead light and economical use of motion are important to consider for optimum time use and efficiency when providing patient care. The chapters covering implementation of treatment include composition of dental deposits, explanation of supragingival and subgingival debridement and discussion of instruments. These sections are informative and concise however, at times I felt more depth was required as to the dental hygienists role and professional responsibilities in regard to implementing treatment. Some photographs of instruments and equipment may be difficult for a student to comprehend due to the small size. Step by step explanation of suture removal and periodontal dressing application was included in this part.

Part Three covers a wide range of topics related to prevention of dental disease

and maintenance of oral health. The sequence used to present the information was clear and concise. Photographs were utilized well to depict preventive aids such as toothbrushes, devices for interdental cleaning and gingival massage, and aids modified for use by the handicapped. Current research information on chemical plaque control agents such as antibiotics, antiseptics and various dentifrices was presented in part three. Step by step explanation of application of pit and fissure sealants was also presented.

The laboratory manual provides hands on experiences and exercises on many dental hygiene procedures. All sections provide objectives, background information, and skills exercises complete with evaluation checklists. The sequence is well set with basic principles such as grasp, fulcrum, hand wrist motion, adaptation, and activation of stroke outlined in separate units with exercises for students to practise. These units would better prepare students for the subsequent chapters on use of specific examination and scaling instruments if additional exercises were provided for student practice. I feel it is essential for students to have practised the basic principles well before advancing to use of the instruments. Photographs and diagrams were well utilized in the unit on use of the probe and made the concepts easy to follow and to comprehend. The units covering scaling instrument, polishing methods, and sharpening were concise yet provided complete coverage of the principles. The unit on therapeutic root planing was very brief and required more detail to provide the necessary knowledge and training a dental hygiene student requires in this skill.

Contemporary Dental Hygiene Practice: Volume One textbook and laboratory manual could be useful to dental hygiene students if close connections were made between the text and lab manual. With close supervision and guidance from dental hygiene faculty member and reference made to other texts and research material on dental hygiene clinical theory, this publication would assist the dental hygiene student in understanding the basic functions of a dental hygienist. It also could be useful for review by graduate dental hygienists.

This book was reviewed by:
Nancy L. Orschel, Dip, DH, BScD
Dental Hygiene Educator
Dental Hygiene Program
Georgian College — Ontario

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Not all non-CDA members are 'Freeloaders'

In your Dec. '89 issue Dr. Dolansky wrote a commentary on the "freeloading puzzle" regarding CDA membership. In one broad statement, all dentists who do not join the CDA are stereotyped as freeloaders. However, there are some special exceptions.

For example, as a dentist in the Canadian Forces, if I am licenced in a province where CDA membership is mandatory, then the military will pay the membership fee for CDA. But, if I am licenced in Ontario, then the military refuses to pay the CDA membership fee for military dentists. And on a military salary, I honestly could not afford the membership fee.

It is also ironic that in the article "Dental Officers graduate at CF Base Borden" Dec. 89 that Dr. J. Niedermayer, President of the CDA praised the Canadian Forces Dental Services for its contribution to organized dentistry in Canada. In summary, the Canadian Forces Dental Services is a corporate member of the CDA, and yet it does not provide for all of its dentists to be CDA members. Δ

Anonymous military dentist

Editor's note: As in most publications, a letter writer may request anonymity, but only if the editor is aware of the writer's identity. In this case we do.

Brigadier-General Begin replies

Thank you for bringing to my attention the opinions expressed by an anonymous dental officer regarding his displeasure at being branded a freeloader in a commentary by Dr. Dolansky in the December 89 issue of the Journal. The dental officer appears to make a distinction between the benefits to be derived from membership in the CDA, whether you are in private practice or a salaried dentist.

Understandably, I do not wish to engage in the merits of this argument. I do, however, wish to clarify a misconception. The Treasury Board guidelines and the Department of National Defence regulations, allow for reimbursement of any fee required by law to exercise a profession in the Canadian Forces. Therefore, the licence fee in all ten Canadian provinces is reimbursed to dental officers. In

those provinces where the one fee includes mandatory membership in the Canadian Dental Association and the provincial association, this is also reimbursed. In the two voluntary provinces of Ontario and Quebec, the licence to practise is reimbursed, but membership in the association, which is not required by law to practise, is not reimbursed. Therefore, membership in the CDA or the provincial association is at his own expense.

In my view, all dentists in Canada benefit directly or indirectly by the multiplicity of programs and activities within the Canadian Dental Association and most will want to put something back into the profession which has provided so much for them as individuals. Membership in the CDA is one way of doing this. The CDA has a budget and increasing annual expenses. A dentist who declines support for the CDA causes the cost of operating the CDA to be borne by fewer members. This is a fact of life. The nonsupporters are benefitting for free. Whether the membership fee is reimbursed or not, or tax deductible or not, should not be the prime consideration. Δ

J.F. Begin

*Brigadier-General
Director General Dental Services*

Editor: Our thanks to General Begin for his courtesy in responding to this dental officer's letter.

The 'Freeloading' Puzzle

Could you please give percentages, separately, of both Ontario and Quebec memberships in the C.D.A. I am sure that in the past, surveys have been done in regards to the reasoning of not belonging to the C.D.A. — do we have another MEECH LAKE? We must act as a united front against any and all interference against quality dentistry.

It is important to maintain a good association with others — do not be short-sighted in order to save a few bucks.

I would most earnestly advise that in order to at least maintain our dental autonomy and quality of life — please be a member of the C.D.A. Δ

*Peter A. Lemiski, DDS
Oakville, Ont.*

Editor's Note: The latest figures indicate approximately 52 per cent of the dental personnel in Quebec (in all membership categories) are members of the CDA. In Ontario, the figure is 55 per cent. It should be noted that in these two provinces, provincial statute does not allow mandatory membership in any voluntary association.

'Puzzled' by letters: A double standard?

The letter of Dr. D.F. Mulcahy and the response of Dr. J.H. Gryfe published in the January issue of the Journal, leave me puzzled and questioning.

Dental treatment for patients known to be suffering from infectious and communicable disease is a complex issue with several professional, ethical and legal implications. This is not new to dentistry as the profession has traditionally been aware of and concerned about the transmission of infectious diseases in the dental office environment. Furthermore, dentistry has always been faced with dealing with some communicable disease process.

My purpose for writing is to draw attention to the question of "site of service", private office or special clinical facility.

In his letter, Dr. Mulcahy makes such statements as

"Hospital dental departments are the obvious locations for treating AIDS patients."

"... the preparation and clean-up time imposes an unreasonable burden on the office."

"... if bleeding results from treatment, can we offer a 100 per cent guarantee to other patients and staff that no possibility of transmission exists?"

"Even if the clinical hazards do not actually differ between hospital and office environments, the public is going to perceive a positive improvement ..."

Who's kidding who? Does Dr. Mulcahy accept the effectiveness of barrier techniques employed in dental offices today? Are these techniques employed only in cases of known infection? Do we have a double standard of barrier practises, one for known infectious patients and something less for the unknown? I do not think so!

My point is that recommended barrier techniques are effective and must be implemented for all patients. To suggest clean-up for a "bleeder," known to be infectious, should be anything less than clean-up for a patient whose condition is unknown, makes no sense. We must ensure that our barrier techniques are maintained for all patients at all times.

The concept of treating infectious

patients in specialized centres or institutions contains an inherent error. Specialized centres suggest specialized care employing special precautions. If those precautions are different than what is recommended as the basic standards to be employed in private offices, then as professionals we are hypocrites. What must public perception be when it is known that barrier techniques employed in special centres are "more complete" by comparison to what is employed in the private office environment. I suggest that public perception would be one of confusion. I further suggest that special centres are over-reacting resulting in a public suspicion of precautions employed in private offices.

Dentists should treat known infectious patients in their offices following approved, effective barrier techniques. Dentists should treat patients, whose condition is unknown, in their offices following approved, effective barrier techniques. The site of service should not vary the barrier techniques employed. Δ

*D.M. Bonang, DDS,
Halifax, Nova Scotia*

Flaws 'do not exist' in new Codes system

In his letter to you in the January, 1990 issue of the *Journal*, in reference to the new CDA Uniform System of Codes and List of Services, Dr. R.A. Clappison states "there are many flaws in the present system", and attempts to support his statement with references to the time factors and responsibility factors which appear in provincial suggested fee guides.

The CDA Uniform System of Codes and List of Services is a list of codes with a description of services and does not include the relative value system. This formula is used by some provinces to determine fees for the codes that appear in the provincial guides.

Although we acknowledge that the new system contains some errors, the flaws to which Dr. Clappison refers do not exist therein. Δ

*Toby J. Gushue, BA (Ed), BA, DDS,
Chairman, CDA
Third Party Dental Plans Committee*

Students are interested in history of dentistry

I wish to respond to Dr. Gryfe's editorial published in the January 1990 edition of the *CDA Journal*. I agree with Dr. Gryfe's observations that interest in the history of our profession is generally lacking in dentists but I certainly do not include myself in this group. Dr. Gryfe erroneously stated that no Canadian dental student has ever entered the competition or won the Bremner Essay Award sponsored by the American Academy of the History of Dentistry.

As an undergraduate student at the University of Alberta, with the encouragement of Dr. Roger Ellis, I entered and received second prize in the Bremner competition in 1982 for my essay entitled "Dental Therapists in Canada: A Revolution in Dental Care for Natives". As I recall, a dental student from the University of British Columbia also received a Bremner Award that year. My article was later published in *Bulletin of the History of Dentistry* Vol. 36(2) 97-104, 1988.

Since receiving the award, I have been a member of the American Academy of the History of Dentistry and have continued my interest in the history of our profession. Take heart, Dr. Gryfe! Maybe you just have to travel to western Canada to find dental students whose interests reach beyond cavity preparation and denture fabrication. Δ

*C. Grace Petrikowski,
BSc, DDS, Dip. Oral Radiol.
Division of Radiology,
Faculty of Dentistry,
University of Alberta*

'Decisive' margin favors fluoridation

Re: "Calgary Vote Gives Fluoridation a Slim Margin of Approval" (*CDA Journal* Jan. 1990)

In reporting the good news you state a narrow 3% margin of approval and later indicate that 53% of Calgarians voted in favour of fluoridation.

Presuming that 47% voted against the measure I calculate the margin of victory

to be 6%, a figure which most politicians would consider to be quite decisive, even, perhaps, overwhelming. Δ

*David K. Peters, DDS
St. John's, Newfoundland*

CDA annual report 'A quality effort'

I received my copy of the association's first annual report "Canadian Dental Association in Action" during the Christmas holidays. For some reason beyond my control (!) I spent some time during the holidays doing paperwork at the office, during which period I read the above noted document cover to cover.

I thoroughly enjoyed the report and thank the association for the effort involved in producing such a document. I found it informative, easy to read, and very professionally designed and presented. A quality effort all around! My compliments.

The CDA has been making a real effort over the past year or two to communicate better with its members. This annual report is another excellent example of the very positive steps the CDA has taken. I know the members certainly appreciate these efforts — keep up the good work. Δ

*Robert H. Cram, Orthodontist,
Red Deer, Alberta*

Did you know?

Since the founding of CDA in 1902, there have been 67 annual meetings held in every major (and some not so major) cities in Canada. Only once was a convention held outside Canada; it was in August of 1918 and the city was Chicago, U.S.A. The significant event was in conjunction with the National Dental Association (now the American Dental Association). The Canadians provided "two essayists of world-wide distinction in war prosthesis". *Dominion Dental Journal*, 1918, Vol. 30.

Planning for a Computer

Dr. Bud Sipko
Richmond, B.C.

Introduction

Automation is an integral part of the business evolution of the '80s and '90s and dentistry is no exception. Insurance companies are rapidly considering Electronic Data Claims. The age of electronic systems is here. Are you ready? Do you have the information you need to make your decision? Dr. Bud Sipko and Dr. Ralph Crawford have teamed to provide the dentists of Canada with information to assist in the education of the dental community towards computerization. This *first* of a series of nine articles on Automation in Dentistry presents some basic questions and expectations for dentists considering computerization.

Recent surveys show approximately 20 per cent of the dentists in Canada have purchased computers for their dental practices. Most of these dentists are satisfied with their systems, but many are not. It is important to do adequate preparation for computer selection or re-selection. Let us start by exploring some of the reasons for considering a computer system.

Consider automation if you have a penchant for knowing some key numbers in your practice. Computerization is helpful if you want to reduce the amount of time spent in data retrieval. A machine can create a data list far more effectively in less time than a person.

Consider a computer if you find your receptionist(s) is(are) often overwhelmed with tasks. By automating, often tasks can be decentralized into other areas of the office, for example, posting treatment, or scheduling next appointments. Surely you have many others!

On the other side here are a few reasons why *not* to consider a computer. If you believe a computer will help you become better organized — STOP! All a computer will do is show you how disorganized you are quicker! Don't buy a computer because a computer sales person told you "everyone needs one".



Dr. Bud Sipko

Don't buy a computer because *you* like toys and this is another one. The gadget store, new sport cars and speed boats were especially designed for dentists in this category.

Don't buy a computer unless *you* are interested in knowing how the system works. Staff changes do occur and you may find yourself in the unenviable position saying, "Now what do I do?" Dentists all across the country are left with that empty feeling of not knowing how to



access the data in their computer.

What about Electronic Claims?

Plans are now being finalized between the CDA Third Party Dental Plans Committee and major insurance carriers to introduce a national EDI (Electronic Data Interchange) system for Canadian dentists. Dental plan information; predetermination, adjudication, claim forms and payments, would be effected in minutes and hours rather than the "paper-chase" of days and weeks. Dental software vendors are now being approached with specifications to nationally link EDI to dental offices. Further information will be immediately passed on to dentists as available.

Should the Staff be Involved?

An emphatic yes! If you believe that automation is an important part of your practice future, then involve your team members. Hold a staff meeting and talk about the idea of computerization. If you're wondering what to say or how to lead it, often a series of "stem sentences" will suffice to begin the process. Here are some to consider in the early stages:

- 1) As I think about a computer for our office, I feel _____.
- 2) One of my major concerns about computers in our office is _____.
- 3) I believe I will need to _____ if we computerize.

When everyone is done, start the meeting by asking someone to respond — then LISTEN!

The insights your staff may bring to the notion of computerization will be very helpful. Listen to what they say — people that are in on the decision are ten times more likely to make the decision work.

What you're not up on, you may be down on. Δ

Dr. Bud Sipko is a private practitioner in Richmond, B.C. Besides having a dental practice, he is the President of two allied businesses: *Selection Research (BC) Inc.*, a consulting organization to the dental profession, and *HealthCare Communications*, a computer software company marketing automation solutions to the health care private practitioner.



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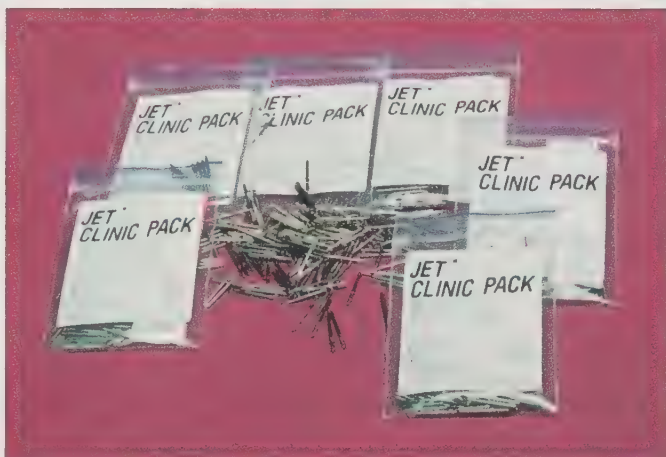
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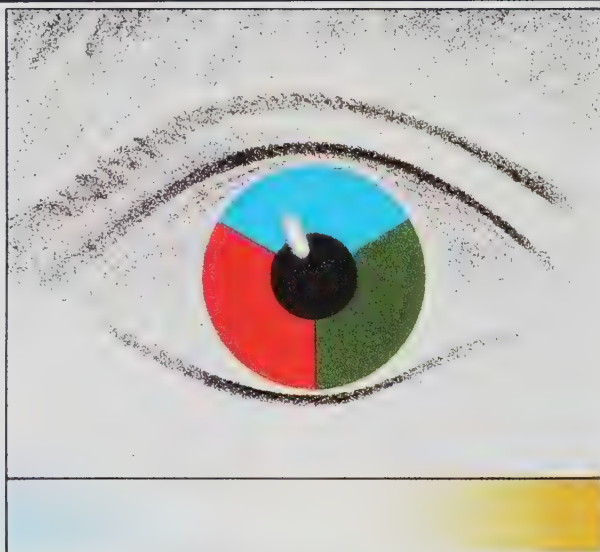


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THE TEN COMMANDMENTS OF INFECTION CONTROL

LAWRENCE YANOUBR D.D.S. Ph.D.

Infection control procedures in Canadian dental offices have improved over the past five years, according to recent surveys, but there is still much room for improvement. The goals of a dental office infection control program should include ten points included in this overview of the subject. These goals should be understood and agreed upon by both dentist and staff, and introduced into an office in a stepwise fashion, with constant monitoring and feedback by all involved. In this way, infection control procedures will then be integrated successfully into the office, providing a safe and healthy environment for personnel as well as patients.

1. **PATIENT EVALUATION** A thorough medical history should be obtained from all patients of record and updated on a regular basis. Consent should be obtained within this document for the dentist to obtain and/or release relevant medical information from other health professionals. It should go without saying that all patients should be treated with universal precautions, as they may be withholding or be unaware of relevant medical information.
2. **STAFF PRECAUTIONS** During the process of hiring new staff or when conducting periodic performance reviews, the dentist should outline in written form, the infection control procedures required for personal protection of each staff member. This includes all relevant vaccinations which should be current, including Hepatitis B, uniform selection and maintenance, and personal hygiene matters.
3. **BARRIERS** A physical barrier must exist between a source of infection and the host organism (eg person at risk of infection), to minimize the risk of infection. Gloves must be worn whenever exposed to bodily fluids. High quality, proper fitting latex gloves should be selected. Vinyl and copolymer gloves may be used for select procedures or when a liner might be required due to chronic skin problems. High quality comfortable masks should be worn in the presence of aerosol or close patient contact, and should be changed frequently. Glasses or full face shield must be used to protect the eyes from aerosol and airborne debris. The use of high volume evacuation in conjunction with rubber dam has been shown to dramatically reduce aerosol contamination during operative procedures.
4. **HAND CARE** Frequent hand washing is required in the dental field. Acceptable antimicrobial soaps contain chlorhexidine, PCMX, povidne iodine or triclosan. The frequent use of hand cremes and booking fewer but longer appointments per day may help alleviate hand problems. Medical consultation may be advised.
5. **SURFACE DISINFECTION** Any surface that directly or indirectly comes in contact with bodily fluids must either be covered with a disposable barrier or treated with an acceptable surface disinfectant. The surface must be cleansed of organic debris (precleaning), thoroughly wetted with the disinfectant for the recommended time and then wiped dry if necessary. The most effective products, according to the most current research, contain 70% ethyl alcohol and dual synthetic phenols.
6. **INSTRUMENT DISINFECTION** Any instrument which cannot be disposed or sterilized, must be immersed in high level disinfectants. High level disinfectants are effective against most organisms, including *Tubercle Bacillus*, but not to more resistant spores. Disinfection must include instrument cleaning, immersion in active disinfectant solution for the recommended time period, and thorough rinsing.
7. **INSTRUMENT STERILIZATION** Any instrument contacting bodily fluids should be either disposed of or sterilized prior to reuse. Sterilization involves a series of steps, including the removal of gross soil, packaging, exposure to sterilizing conditions for the recommended time period, followed by proper instrument storage prior to reuse. Acceptable methods of sterilization in a dental office include autoclave, chemiclave and dry heat. The use of chemical sterilants (eg. ethylene oxide, glutaraldehyde, chlorine dioxide) to achieve and maintain instrument sterility is beyond the scope of most dental offices.
8. **WASTE DISPOSAL** The proper disposal of 'biomedical waste' is the legal responsibility of every dental practitioner. This may include all human tissues and any substance contaminated with bodily fluids. Advice should be obtained locally regarding the definition of biomedical waste and its disposal, as these matters are affected by municipal and provincial legislation. At the very least, sharps should be placed in a clearly marked puncture proof container that is sealed prior to disposal. The waste should not be subject to compaction, which could violate the integrity of the sealed container.
9. **QUALITY ASSURANCE** Once an infection control program has been developed and instituted, a feedback mechanism must be included to ensure that the process is being followed correctly. Remedial action must be taken when a breakdown in the process is uncovered. One example would involve the monthly use of biological monitors to evaluate the autoclave. If it is found that autoclave cycles are not producing sterile loads, repairs must be instituted immediately and alternative means found to handle instrument sterilization. Conversely, if monitoring detects acceptable function, these results must also be kept as proof, or 'assurance of quality', regarding this procedure.
10. **EQUIPMENT DESIGN** Due to the escalating importance of infection control in the dental office, designers of dental supplies, instruments, equipment and offices are improving their products. Examples include foot controlled chairs, sterilizable air-water syringes, easy to disinfect surfaces, and many new disinfecting and sterilizing solutions. Critical reading of the current dental literature and discussion with your dental dealer will help keep you informed of the latest developments in this ever changing field.

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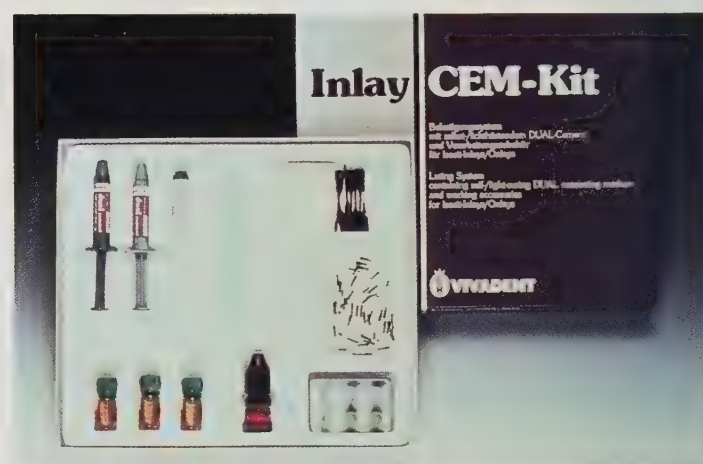
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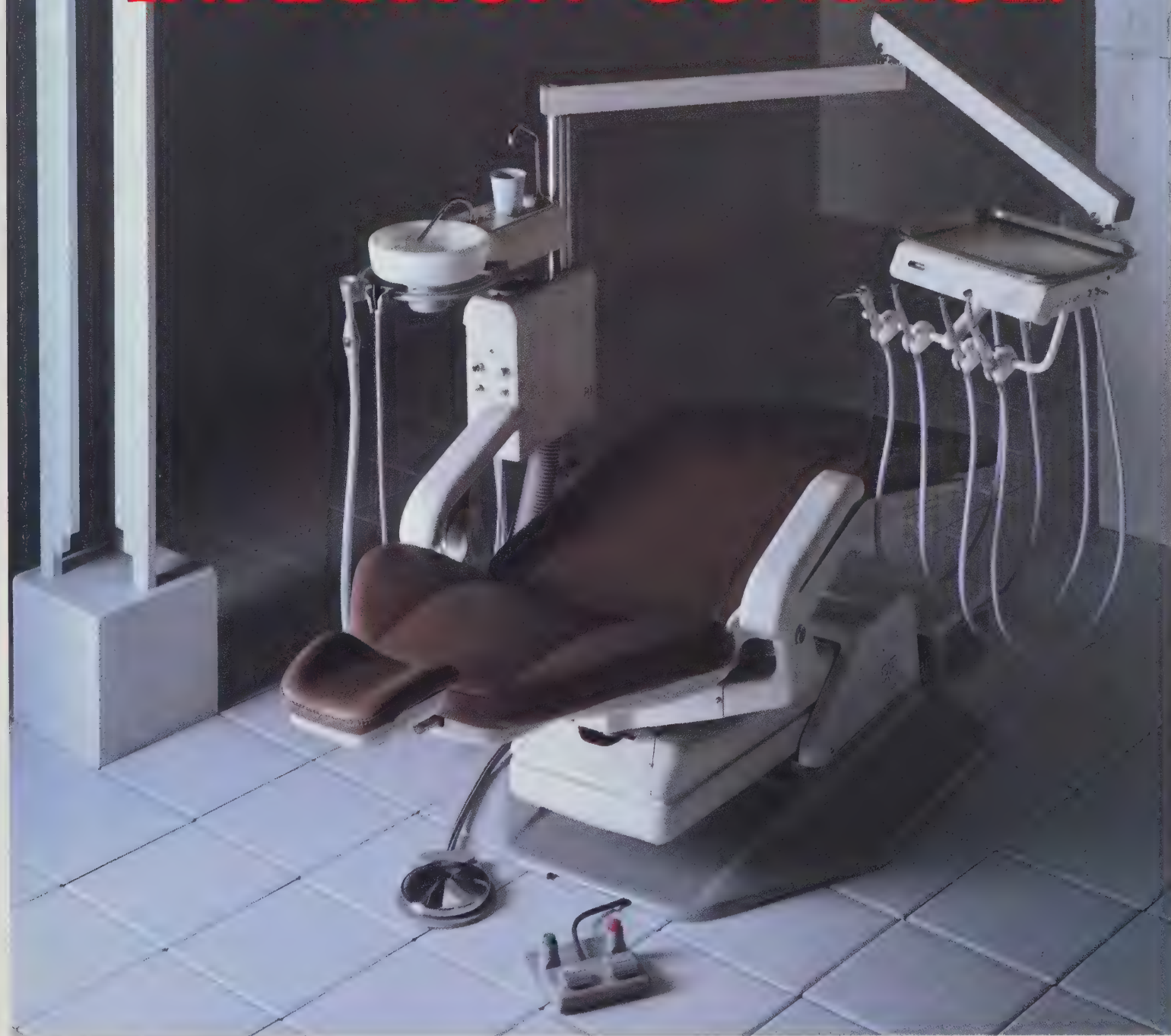


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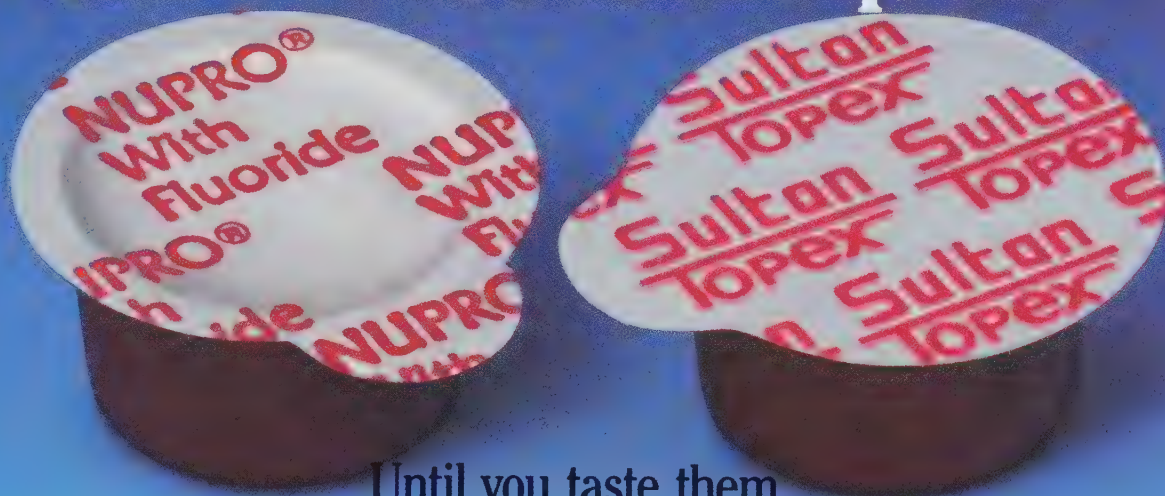
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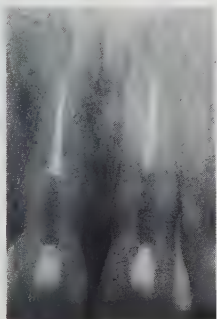
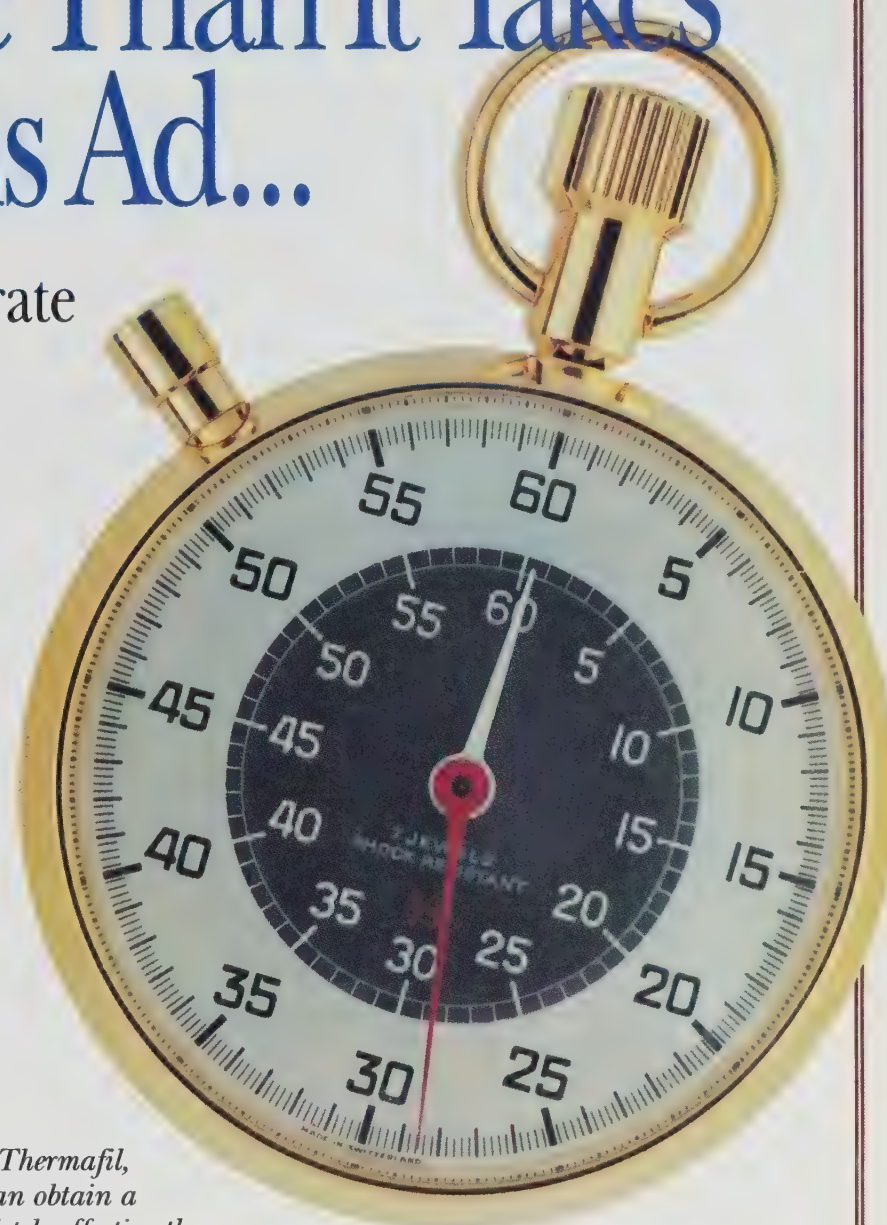
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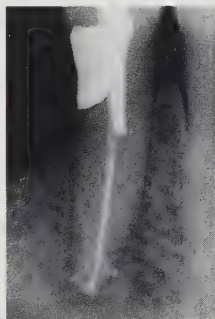
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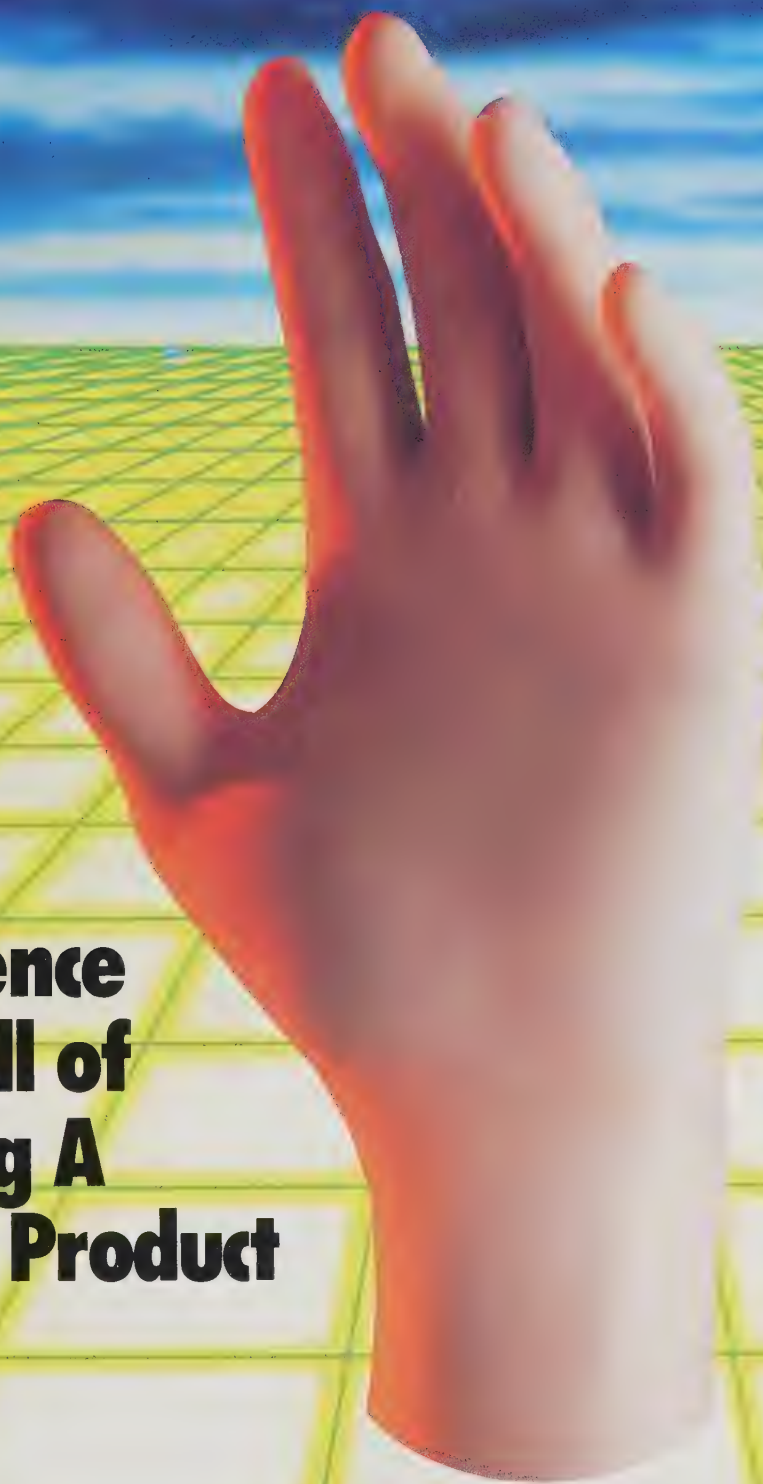
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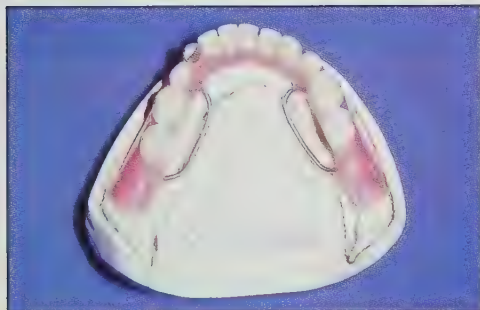


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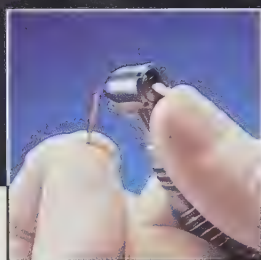
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Above – The IWC 85 (with sink)
Below – The IWC 56



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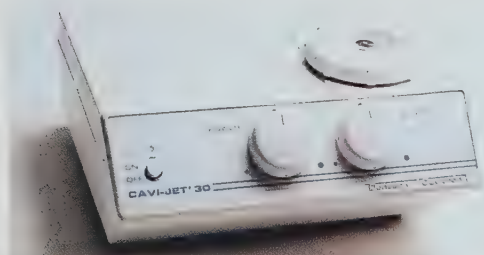
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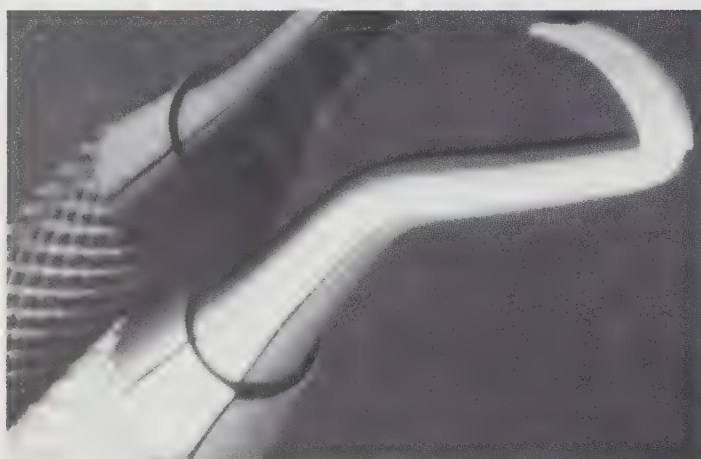
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Things Change

Robert S. Unger, PhD, C. Psych
London, Ontario

When I was growing up in New York City, I remember going to the family dentist. Through the eyes of a child at least, he seemed to be a happy "older" person. I recall him having one dental chair, a cramped and cluttered desk, an office chair with squeaky wheels, an assistant/receptionist and, in the waiting room, the largest fish tank that I had ever seen. He was very, very proud of his tropical fish.

When I was in his office we used to talk about fishing, the New York Yankees, how my schooling was going and my very first car. He even came out to see it, turned it on, and listened to the orchestra of sounds coming from the engine with a strained, but confidence building smile. He always seemed to enjoy my car and made my sister and I feel that we'd accomplished a great feat when we had no cavities. I got the feeling that he really cared for me and had the time to demonstrate that caring.

In the late 60s, when I was about twenty, he renovated another room and some woman, probably a hygienist, came into the office once or twice a week. Maybe it was my imagination but it seemed that things began to change. My friend the dentist didn't seem to be as relaxed as I had remembered him to be. He scurried between the room I was in and the other room. Each time I went to see him, it seemed that he had a new chair-side assistant. He did not have enough time to hear that I was accepted into college, nor that my car finally blew up as he had warned. The waiting room started to show signs of wear; the furniture became worn and tattered. One bulb or the other in the ceiling light always seemed to be burned out. Once, I even watched him yell at his assistant while I was being treated. I felt badly for her because she seemed to be really embarrassed. The rumour was that one day he bought thousands of dollars of furniture in one afternoon without much thought. He just didn't seem to be the man that I had come to know for almost twenty years. Besides my parents and family doctor, he was one of the people I had



Dr. Robert S. Unger

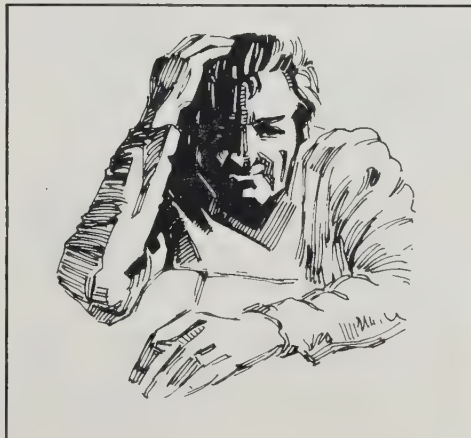
known for the longest time and I really liked him.

He died of a heart attack at the age of forty-four in 1968.

He left behind a beautifully renovated office, lots of new furniture, a staff of four, a brand new home, a wife and children and at least one confused patient.

Most professionals have less reluctance to contact a consultant to change the tattered office decor. . . .

Last November, I presented a lecture entitled "Stress in the Modern Dental Office" at the Academy of Dentistry's 1989 Winter Clinic held in Toronto. Since then, I have been asked to share my thoughts as a clinical psychologist associated with the Ontario Dental



Association's Dentist-At-Risk (DAR) Program. It seems curious to me that as I now sit down to prepare this article, I find myself some twenty years and a Ph.D. later, recalling memories of my childhood dentist. I would imagine that in his passing, my sense of loss at his death might have been more important to me than I had realized at the time.

The provision of psychological services has always had the same goal as that for dental services: to relieve patients' pain. There seems to be general consensus that patients do not always like going to dentists for treatment. They may be worried about the possible discomfort of treatment, and the concept of being (literally) "at the hands" of their dentist. I think that most patients would still prefer to go to a dentist rather than to a psychologist because the treatment is known, tangible, and directly related whereas a psychologist might provide treatment that is sometimes different and unfamiliar. Both professions have their share of providing reactive treatment, but the ultimate goal of both of our professions is to promote pro-active involvement, thus reducing the duration and severity of pain and/or dysfunction.

During my clinical involvement with dentists and ancillaries in providing stress management seminars, study group presentations and psychotherapy sessions, I have been impressed by the high level of stress that is associated with the development and maintenance of a modern clinical dental practice. In fact, almost fifty percent of my clinical caseload is from one profession — dentistry. It is unfortunate that for the most part, the stress is unintentionally self-induced and becomes so consuming as to effectively paralyze (in the psychological sense) the afflicted individual.

Occupational stress research has demonstrated that several professions are prone to the ravages of emotional upset resulting in lessened productivity. My own involvement with air traffic controllers, stock brokers, commercial pilots, police officers, physicians, nurses, as well as other stress prone professionals

besides dentists show remarkable similarities.

... than for changing battered office relationships.

In recent years, research efforts have turned towards the students of such professions and not surprisingly, medical and dental students have been found to be "predisposed" to acute stress syndrome. Left untreated, chronic stress syndrome or burn-out of these individuals may be only a matter of time and opportunity.

The idea that medical and dental students are prone to professional burn-out makes sense. Students that are accepted into their respective programs were probably extremely good students, high achievers, somewhat meticulous and perfectionistic. In context and within certain limits, these characteristics would lead to high grades, good quality work and ultimate acceptance into the school of their choice. From a psychological perspective, these same previously productive and adaptive mechanisms sometimes return in different situations in later life as maladaptive, leading to the possibility of psychotherapy.

Through therapy, he learned how to realistically identify the true source of his unhappiness (he felt that he had been taken advantage of throughout his entire life), how to compartmentalize issues in one aspect of his life from another, and how to increase his repertoire of responses to future situations. After six months of therapy, he reported that he felt like he had been given a new lease on life.

Perhaps three cases might help illustrate some dilemmas that have been experienced by my patients (who happen to be dentists) experiencing professional burn-out syndrome. One patient expressed concerns about lack of payment by his older, long-time patients. He carried these concerns around with him constantly, even taking them home and eventually they began to affect his marriage as well. He had a very large accounts receivable and he was convinced that his older patients were taking advantage of him. His anger and bitterness increased and his marital life suffered through reduced functioning and quality of life.

Another dentist complained that on most Sunday afternoons she became moody, depressed and irritable towards her husband. She thought that she needed marital therapy because her husband was preparing to separate from her.



She also reported restlessness, poor sleep, and deepening depression throughout the remainder of each weekend which did not seem to abate until some time on Tuesday. Poor occupational performance was observed on most Mondays and most of the Tuesday. Her office staff became concerned and told her that she was irritable, moody, inconsiderate, anxious, depressed, and disruptive to office functioning. She attended therapy with me and was able to acknowledge her dread of returning to work each Monday morning. Her job had become boring, laborious and unfulfilling to her. She was able to verbalize that it had been several years since she found enjoyment from her career, her staff and her patients. The fact that her husband was in the process of marital separation could not be attended to appropriately by her because her professional world was crumbling. She learned that it was vitally important for her to be accepted by everyone she knew and finally that her expectations were well beyond reality. The person she loved was leaving her and she felt powerless to make changes. She learned that she was able to change her tendency to worry incessantly about everything and to prioritize those issues that deserved her attention. Eventually, she was able to change her habit of constantly seeking approval and acceptance. During our follow-up interviews, she indicated that she continues to use her new-found techniques with the result that her marriage is stronger, her family life has improved and she thoroughly enjoys her weekends as well as her early week appointments.

Lastly, I remember meeting a very hostile dentist who was accompanied to my office by his wife, two brothers and a brother-in-law. He accepted my invitation

to meet with me in my office and we left the concerned group in the waiting room. After a while, he relented somewhat and indicated that he was very much aware of his bitter, cold, aloof and critical outward appearance. His anger usually was directed towards his staff which, of course, caused them much concern. During the course of psychotherapy he began to realize a sense of his own personal insecurity and his belief that he must be perfect in all that he attempted. The fact that he was considered to be a very competent dentist and that he was financially secure was not sufficient to quiet the storm raging within him. His staff-directed anger was his attempt to control his staff before they were able to mention any of his own self-perceived shortcomings. Through therapy, he was able to learn to be more accepting of his responsibilities in his own familial relationships and to live a more content, satisfying life. The quality of all his relationships (including his professional ones) increased significantly.

I have noticed that one of the biggest difficulties in getting "better" is having the individual recognize that they are indeed having a problem. I have had many professionals brought to my office by their loved ones, colleagues or office staff. About one-third are not convinced that they need to receive treatment from a psychologist but finally accept. One-third are relieved that they are finally going to be helped, and one-third very diplomatically resist treatment initially but very likely call my office some months later to "have another talk."

The psychological well being of human resources is paramount to good office morale, productivity and longevity. Despite this, most professionals have less reluctance to contact a consultant for changing the tattered office decor than for changing battered office relationships. This demonstrates the erroneous notion that to seek help for such concerns might be construed as "failure." Psychological consultation to professional groups has become less mystical than in former years. Within dentistry, for example, several provinces have established programs to assist "dentists in need." These strictly confidential programs are available to the dentist, the dentist's family as well as to the entire office staff. British Columbia, Manitoba, Ontario, New Brunswick and Nova Scotia have established programs with people trained and waiting to assist.

If you find yourself, a loved one, or one of your staff emotionally distraught for more than a few months, perhaps you

might wish to share your concerns; they might be having a serious problem. Knowing that someone actually cares might be sufficient and no other involvement need be forthcoming. On the other hand, remember that if you can observe that another person has a problem, it might actually be worse than what you can see: the person might be trying very hard to prevent others from seeing the real intensity of the conflict. If you decide that additional skills or resources might be helpful, you might contact your provincial dental, hygiene, or assisting associations for the names and addresses of local contact persons.

And so, in a very small way, I hope that what I write about today and what I do in the future might have an effect that would allow youngsters to grow into adulthood without ever having to watch their young dentist deteriorate and die. Δ

Dr. Unger maintains private practices in London, and Toronto, Ontario with emphasis on Professional Burn-out Syndrome. He can be reached either directly, through the Ontario Dental Association Dentist-At-Risk program, or through the Canadian Dental Association.

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FRI. NOV. 2, 8:30 AM - 4:30 PM

Dentists' Program

- Dr. Wayne Campagni** - Successful Posterior Bridges from A to Z
- Bob Berger** - Improving Communication With Your Lab Technician

Auxiliary Program

- John Nasedkin** - Auxiliary's Role in Marketing Cosmetic Dentistry, Auxiliary's Role in the Partnership of Managing the Dental Office
- Claudia Anderson** - Bridging the Communication Gap Within the Dental Team

SAT. NOV. 3, 8:30 AM- 4:30 PM

Dentists' Program

- Dr. John Nasedkin** - Alternatives to the Traditional Fixed Bridge - Future Trends
- Dr. Brian Crispin** - Superior, More Aesthetic Anterior Bridges from Diagnosis to Delivery

Auxiliary/Spouses' Program

- Dr. Marion Balla** - Performing the Balancing Act in Parenting, Working and Marriage, and Building Self-Esteem in Those Around You

Lab Technicians

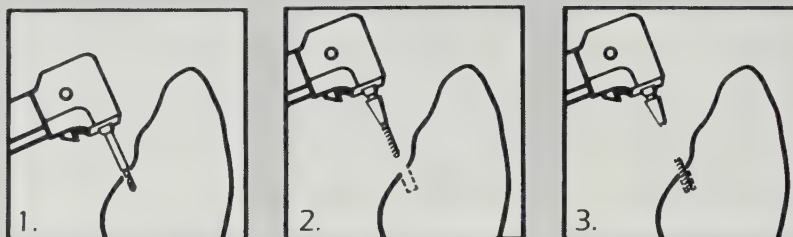
- Bob Berger** - Standardization of the Laboratory's Crown and Bridge Department. How to Check Your Work, Eliminate Remakes and Produce Consistent Results for Success and Profit
- Dr. John Nasedkin** - Survey Results - Your Dentist's Concept of Laboratory Service

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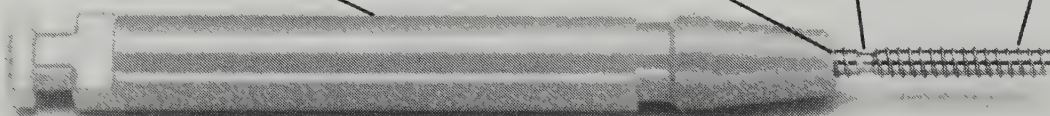


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Robert P. Dahl
London, Ontario



The whole spectrum of human resource management is becoming increasingly complex and is proving to be an area receiving considerable attention from all business enterprises, large and small, private and public. A testament to this fact is the emergence, over the past several years, of a variety of "specialists" in human resource management, to perform and advise in such specific aspects as pay equity, staff training and development, and recruitment. It is becoming evident that, in some businesses, the requirements of human resource management may soon be beyond the capabilities of the "generalist" in this field. This fact is causing considerable concern to a host of small businesses, including some dental practices.

In addition to keeping abreast of, and ensuring compliance with, a number of legislative requirements, the modern dental practice is finding itself having to cope with a significant change in the attitudes and expectations of existing staff, and those who wish to become staff members. It is not surprising, therefore, that we are often asked by our dental clients, "How can I attract and retain good employees?" The answer is not a simple one to give, but the burden of such situations can be relieved through the use of a logical and business-like human resource management approach.

It should be remembered that a person who decides to become an employee of a dental practice because of the opportunities it provides, will remain with the practice for the same reasons. The key then, is to use the recruitment process to demonstrate to prospective employees that the practice is well organized and operated, has solid values, goals and objectives, and presents an excellent opportunity for an individual to contribute, develop and achieve a sense of personal satisfaction and enjoyment. It is incumbent upon the practice owner to "market" his practice to these people, in order to have access to those persons who would be assets as staff members. People no longer change jobs for slightly more money, for the sake of change, or for all of the traditional reasons, but will certainly consider a job change if there is an opportunity to achieve what they

value and desire, on both a professional and personal basis, in a progressive, professional and pleasant environment.

But where does one begin? The first step is to identify what your practice has to offer to a competent and progressive person. You can highlight, in summary form, such features of your policy manual as those pertaining to:

- your values and beliefs
- your goals and objectives
- how these are to be achieved
- statement of job description and performance expectation, and
- compensation plan, performance appraisal and performance incentives

The next step should be the identification of what you are looking for in a person. This can be a summary list of such items as:

- knowledge and training
- pertinent experience
- specific skills
- personality characteristics
- progressiveness in attitude and style, and
- "fit" with existing staff members.

It is appropriate at this time to review both of these lists, "fine tune" them as necessary, and have your staff members review them, to offer comments and suggestions. It is important to communicate this information to the existing staff, and have their input, if it is your wish to maintain an open, well-coordinated, co-operative and congenial atmosphere. This communication will enable the staff to:

- know that you are recruiting
- revitalize their efforts towards meeting your criteria, if necessary, and
- contribute to the recruitment process

and to the further development of the group.

When there is general agreement, and satisfaction, that the information is complete and relevant, care should be taken to incorporate this information in a well planned and inspiring newspaper and/or journal advertisement. If you want to have access to the best candidates for the job, it is necessary to not only widely advertise the availability of the job, but also to stimulate those persons who can identify with your values and style, and want to be associated with a practice such as yours. A scanning of the job advertisement section of local newspapers all-too-often reveals that fewer dental jobs are advertised than are available, and that most advertisements which appear are too brief and/or uninspiring. Both situations can substantially limit your access to the best potential candidates. It has been estimated that as few as forty per cent of all available dental jobs are advertised, indicating a reliance on "word-of-mouth" advertising, which does not always give you access to the best people.

In the preparation of the advertisement, it is to your benefit to clearly promote your practice, indicating your style and requirements, as indicated in your preparation lists, and what can be expected by the successful applicant in return for meeting these criteria. If you offer salary scales, annual performance reviews and pay for performance, clearly identify these facts. If you place a premium on quality and positive attitudes, state these as well. Be proud and positive about your practice. To demonstrate your organized and business-like manner, give a definite deadline for receipt of applications.

In the interval between the placement of the advertisement and application deadline, take time to "fine tune" your approach to the interview, prepare your interview agenda, and prepare any hand-out material. Keeping in mind that the purpose of the interview is two-fold, prepare the information and agenda in the context that it is the second opportunity to "sell" the idea that your practice is a desirable workplace. It is also the first and only opportunity you have to demonstrate the progressiveness, spirit, professionalism and business manner that are the attracting features of your practice, as

stated in the advertisement. The second purpose of the interview, to assess candidates' qualifications against specific employment criteria, is also an opportunity to demonstrate your degree of organization, thoroughness and business manner.

In preparing for the interview, it is necessary to develop a "fixed" agenda for each candidate, in order to keep well-organized notes for later review and comparison during the selection process. This agenda should be designed in such a way that it affords ample opportunity to:

- provide a positive overview of your practice and the job
- enable each candidate to talk about themselves, their skills, strengths, attitudes and commitment
- discuss specific questions from both parties pertaining to the practice and the job, and
- tour the office and meet briefly with each staff member.

The amount of time set aside for each interview should be no more than one hour. While this required time commitment may compromise your practice time and office routines, it is an important and worthy investment for the future. If the chosen candidate will report not only to you but also to another person, such as an Office Co-ordinator, in full or in part, it is prudent to have that person as an integral part of the preparation process, and to play an active role in the interview and selection process. Use of the collaborative process, including attention to the impressions that other staff members have of each candidate, not only adds other information and views to the decision about the right candidate, but also will help ensure that all staff will have a feeling of responsibility about the decision and the need to foster an ongoing effective working relationship with the successful candidate.

In selecting applicants for initial interview (which should number from three to five), it is wise to look beyond the routine descriptions of education, training, experience and skills, trying to identify some seemingly small but important pieces of information from which you are able to gain some insight about the whole person. Such additional information often gives you the indication that the applicant is worthy of consideration, and the opportunity of an interview. The same applies during the interview process. It is often not what is said, but how it is said, that may indicate to you that you have found the person with all of the professional and personal qualities which will have a positive impact on all aspects of

your practice. Some of the qualities you should look for are:

- friendliness and congeniality
- self confidence, without over confidence
- mannerism and poise (maintaining eye contact)
- responsiveness (immediate versus hesitant)
- genuine interest
- sense of responsibility and commitment, and
- no fear of asking questions.

There are no doubt a host of other qualities which are important to you, and should be included in your guideline. A key strategy for creating the right atmosphere and opportunity to assess the candidates' qualities lies in the timing of the interview. Morning interviews are thought to be the most opportune time, when both you and the candidate are rested, focused on the interview and able to present the best possible image. Later afternoon interviews are to be avoided, as you cannot expect the best presentation and performance from either yourself or the candidate, when you are tired and dishevelled from a long, hard day and want to get home to relax. Luncheon interviews are usually time-restricted and have the distraction from the dining activity. A maximum of two initial interviews per day should be observed, and no interview should be interrupted for any reason. The importance of this lies in the fact that an uninterrupted interview gives the candidate a strong impression of your interest in and attentiveness to them.

At the conclusion of the initial screening interviews, you will, hopefully, have found one or more candidates who could meet your requirements. These persons, at the end of their respective interviews, should have been given some prepared material relating to job descriptions and performance expectations, compensation plan, performance evaluation format and conduct code, and should have been made visually aware (but not given a copy at this time) of your complete policy and procedure manual. They should also be told when to expect to hear from you concerning the status of their application. They will no doubt review this material and use it as a basis for specific questions at the next interview. Between the first and second interviews (a time frame of at least two days should be scheduled), take the opportunity to review your notes, discuss the staff's impressions, do your reference checking and formulate the focus and agenda for the second interviews, with a view to arriving at a decision.

Reference checking is an integral part of the recruitment process, most often representing a fine line between the success or failure of that process. When speaking with a referee, avoid generalities, know what information is important and ask specific questions, such as:

- how do you rate the person's knowledge and skills, and the ability to apply these?
- how would you describe the person's personality, sense of responsibility and commitment, attitude, work habits?
- did the person have a positive or negative impact on the job, and on the practice in general?
- how would you describe the person's interpersonal skills relative to you, other staff, patients?
- what are the person's job and personal interests? Is there a conflict?
- would you re-employ the person? If not, why not?

When you have made a decision and have chosen the successful candidate, notify that person by phone, informing of your decision and stating that a letter of appointment is being prepared, providing the terms and conditions of employment. When the person verbally accepts your employment offer, ask that the acceptance be made in writing, in response to the letter of appointment and stating acceptance of all terms and conditions. In your letter of appointment, clearly define the terms and conditions of employment and the expectations for job performance. Forward a copy of the policy and procedure manual and clearly state that your expectation for job performance "shall be in accordance with the philosophy, goals, objectives, codes, policies and procedures as contained in the policy manual." Make specific reference to a three-month probationary period and its meaning and importance. Set the date of commencement of employment and ask the person to fully familiarize themselves with the requirements and provisions of the manual prior to commencement.

Successful staff recruitment is a key component of successful practice management. Ensuring access to and the hiring of the right person(s) will go a long way to establishing a solid foundation for effective daily operation, and the creation of a positive practice image. You cannot afford to lose what you stand to gain. Δ

Robert P. Dahl is Principal Consultant of Dahl & Associates, Consultants in Health Care Management, located in London, Ontario. This consulting service specializes in Dental Practice Management.

Key Concept Phrase: "Successful staff recruitment is a key component of successful practice management."

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"Foolish and philosophically absurd," his outraged detractors cried. Some four hundred years ago, Galileo was hauled over the coals and charged with heresy for challenging the fashionable ideas of the time. His crime was in promoting the ridiculous theory that the earth moved while the sun remained stationary. ¶ Flying in the face of conventional wisdom requires a resoluteness of purpose and a pretty thick skin. And nobody knows that better than the makers of Listerine. ¶ Listerine continues to encounter its fair share of raised eyebrows among the traditionalists of the dental community. After all, there is still resistance to the notion that an oral rinse can play a significant role in supragingival plaque and gingivitis reduction. ¶ But if there are those among you who are still taking a cautious wait-and-see attitude, perhaps you should know that the American Dental Association doesn't share your scepticism. ¶ In fact, Listerine is the only over-the-counter rinse to have satisfied the ADA guidelines and to have received its Council on Dental Therapeutics' seal of acceptance. ¶ Clinical studies conclusively show that as an adjunct to your professional care, and your patients' daily oral hygiene, Listerine will further reduce plaque by as much as 34%^{1,2,3,4}. ¶ The scientific explanation is a simple one. Because Listerine is a broad spectrum bactericidal rinse: it destroys the major oral microorganisms found in dental plaque. ¶ There are no substitutes for brushing, flossing and regular dental visits. However, Listerine can offer your patients who need extra help an easy and effective way to further reduce plaque and gingivitis. ¶ Now, do we still hear the purists tut-tutting?

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PREVENT AND REDUCE SUPRAGIN-
GIVAL PLAQUE AND GINGIVITIS.



A FEW CLINICAL FACTS ON LISTERINE FOR DIE-HARD SCEPTICS.



Listerine is the only non-RX antimicrobial rinse accepted by the ADA to help control supragingival plaque and gingivitis, based on long term clinical studies following the ADA Guidelines (Council on Dental Therapeutics):
J.A.D.A. 112:528, 1986.

1. Studies were randomized, double-blind, parallel group design.
2. Study populations were representative of patients who use the product.
3. Both sexes participated.
4. Frequency and duration of product use were representative of actual use label directions.
5. Product was compared to placebo control.
6. Studies were at least six months in duration.
7. Product was tested in at least two studies by different independent investigators.
8. The same examiner was used with the same subjects for each index and procedure throughout each study.
9. Supragingival plaque was scored by an acceptable plaque index (the Turesky modification of the Quigley-Hein Index).
10. Studies used an acceptable gingival index which met the guideline criteria (Modified Gingival Index).
11. Evaluations were conducted at baseline, three months, and six months.
12. Extrinsic tooth stain and soft tissue condition were evaluated at

baseline, three months and at end of study.

13. Effects on supragingival plaque microbial composition were measured in two separate six-month microbiological studies by two different, independent investigators.

In conjunction with normal oral hygiene and regular professional care, Listerine:

A. Helps prevent supragingival plaque and gingivitis.

DePaola L.G., et al. "Chemotherapeutic inhibition of supragingival dental plaque and gingivitis development". J. DENT. RES. 16:311-315, 1989.

In this six-month, double-blind study, twice-daily use of Listerine Antiseptic with regular oral hygiene following professional prophylaxis inhibited the development of both supragingival plaque and gingivitis by 34% compared to the hydroalcoholic control.

	Listerine	Control
Plaque Index	1.15	1.75
Gingival Index	0.92	1.39

B. Reduces existing supragingival plaque and gingivitis.

Lamster J.B., et al. "The effect of Listerine Antiseptic on reduction of existing plaque and gingivitis". CLIN. PREV DENT 5:12-16, 1983.

This six-month, double-blind study demonstrated the efficacy of twice-daily use of Listerine in reducing plaque and gingivitis. Scores measured a 20.8% reduc-

tion in supragingival plaque and 27.7% reduction in gingivitis in the Listerine group - a significant improvement over normal oral hygiene alone for the Listerine group versus the vehicle control.

	Listerine	Control
Plaque Index	1.93	2.44
Gingival Index	1.20	1.66

Listerine destroys major oral presumptive pathogens within 30 seconds.

Minah G., et al. "Effect of six month use of an antiseptic mouthrinse on supragingival dental plaque microflora". J. CLIN. PERJO. 16:347-352, 1989.

Goldner S.B. Rubin M., Brogdon C. "Antimicrobial activity of O.T.C. mouthwashes". Data on file, 1986.

Plaque Microorganisms Susceptible to Listerine Antiseptic*	
Gram-Positive Facultative Cocci	Streptococcus sanguis
	Streptococcus mutans
	Streptococcus salivarius
Gram-Positive Facultative Rods	Lactobacillus acidophilus
Gram-Positive Anaerobic Rods	Actinomyces viscosus
Gram-Negative Anaerobic Rods	Bacteroides intermedius
	Fusobacterium nucleatum
	Leptotrichia buccalis

Yeasts	Candida albicans
*in <i>in vitro</i> testing	

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*Caution: Do not give to children under 6. Contains: Alcohol 21.90% w/v, Eucalyptol 0.091% w/v, Thymol 0.063% w/v, Menthol 0.042% w/v. "Listerine has been shown to help prevent and reduce supragingival plaque accumulation and gingivitis when used in a conscientiously applied program of oral hygiene and regular professional care. Its effect on periodontitis has not been determined". COUNCIL ON DENTAL THERAPEUTICS AMERICAN DENTAL ASSOCIATION. For more information on Listerine clinical studies or prescribing details call 1-800-668-1503.

ACCEPTED BY THE ADA TO HELP PREVENT AND REDUCE SUPRAGINGIVAL PLAQUE AND GINGIVITIS.

Recall Systems: Life Support for Your Practice

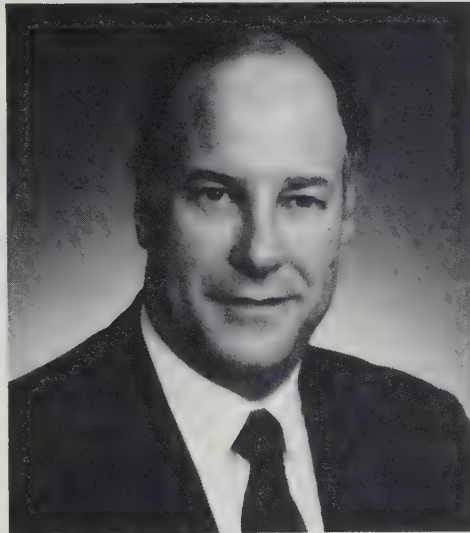
Robert A. Brandon, DDS
London, Ontario

Regardless of the terminology used, the recall, preventive or check-up appointment affords the dentist further opportunity for patient "bonding" and the opportunity to encourage patient referrals. The best source of new patients in any practice is by personal referral from your currently active, satisfied and enthusiastic patients. These patients are most likely to go out of their way to recommend you to other prospective patients. There are, obviously, other clinical and financial reasons for a well-maintained recall system.

If patients are satisfied with the quality of their experience with a dentist, they will be more likely to return. However, even enthusiastic patients may not return for regular recall visits unless invited to do so. This results in lost patients, lost referral sources, lost revenue, lower practice asset value and distress for the dentist and staff. The recall system penetration ideally would be 81-87 per cent. This area of the practice can easily be monitored daily by the receptionist and reported monthly to the dentist/manager. **The recall system is the life support system of any practice.**

The design of the system, the training and skills of the staff member primarily responsible and constant monitoring of effectiveness are of vital importance.

The system should be office initiated rather than patient initiated. Although much more labour intensive, a well done telephone contact has far more positive public relations impact than does a postcard. If the telephone contact method is chosen, the employee responsible must have exceptional verbal skills, a high degree of enthusiasm and a totally positive attitude. Obviously these abilities and traits must be primarily evident in the person selected or hired to perform this key role. This is far too important to be left to chance and should be reflected in that individual's job description and performance appraisal. The pre-employment interview should specifically examine the candidate's aptitudes and enthusiasm for interpersonal communication. The person managing the system must realize the critical nature of the role and receive the support of the entire staff. Ideally, a block of uninterrupted time should be provided. A realignment of staff hours may be necessary to facilitate contact during the



Robert A. Brandon, DDS

early evening hours. Due to the skills of the staff member responsible, financial or other benefit adjustment may be deemed desirable for excellence in this critical activity.

The office manual must have a section devoted to this function. Included should be the terminology to be used or not used. For example, the word "recall" may have a negative connotation associated with the big three auto makers! This "scripting" is important because it increases effectiveness, facilitates training of a new staff member and greatly enhances employee confidence. It is vital, however, to ensure that it not be simply read to the patient in the manner of a telemarketing solicitor. It is important to realize that it is the listener, not the speaker who supplies the meaning to our words. The receptionist may wish to say, "I am calling, as you requested, to schedule your preventive appointment. I can offer you a choice of morning or afternoon visits. Which would you prefer?" (People like choices!) Positive terminology, anticipating a positive response and allowing for choice are essential. Reminding the patient that they have requested a call will avoid the connotation that you are simply soliciting business. The desired patient perception is that you are providing them with an important service by calling them. Patients often expect to be involved in an ongoing preventive program. The omission of or sporadic activity in this area may send a false "lack of caring" signal. The patient

may be lost to another practice and/or cease to be an active referral source. There is an abundance of positive public relations value in reassuring patients at the end of a course of treatment that their dentist will see them on a regular basis to ensure their continued good oral health.

If an office is well organized and time management is a priority, a pre-appoint system is very cost and time effective. A notation must be made in the appointment book to indicate that the appointment was made on a pre-appoint basis several months previously. In these cases the receptionist may wish to confirm the appointment 48 to 72 hours in advance rather than the customary 24 hours. A confirmation postcard may also be advisable two weeks prior to the appointment. If used, this card may be addressed by the patient at the last visit. It may be that when the patient receives the card, in their own handwriting, it reinforces the notion that it was their choice to make the appointment and compliance may be increased. Patients who demonstrate no reliability in the pre-appoint situation should not be appointed in this manner.

Another advantage of the pre-book system is that it demonstrates ongoing patient commitment to their oral health maintenance in your practice. Some consultants feel that a patient who leaves a practice without a future appointment may not in a strictly business sense, really still be considered to be a patient of that practice.

Offices with the most effective recall penetration utilize a dual customized system. It is a simple matter to combine a pre-appoint system with another mechanism according to patient/office desires and tendencies. Absolutely essential to any system is prevention of patients being overlooked and "falling through the cracks." This concern is a major stressor, for most dentists. The colour coded tab system offered by commercial suppliers works well in this regard. An effective system increases revenue, decreases costs, alleviates stress and frees up your primary public relations person for other practice development activities.

Sometimes office staff treat the telephone recall system with some resistance and view it as secondary to their other duties. The reason for this resistance may

be fear of rejection by the patient, or being viewed as a nuisance, or being put in a begging situation with a reluctant patient. If desirable terminology for various scenarios is included in the office policy manual, it may bolster employee confidence and thus decrease reluctance to address this area. If the entire staff, including the dentist, enthusiastically support and become involved in the system, the refusal rate will be lower and staff enthusiasm will remain high.

The most important part of the system is an understanding of the patient's perspective. There must be a **perceived** need and desire to return. The connotation of the appointment must be positive for the patient. It is very difficult to persuade a person to do something they neither want nor feel they need to do. The **active** involvement of the patient in the process will produce optimal results. The appointment frequency "prescribed" by the dentist, if based on the patient's individual needs, will be more likely to become a joint decision and thus compliance will increase. The following suggestions may assist in facilitating and enhancing your system, and patient involvement.

1. At the initial examination appointment, the dentist and/or hygienist and/or assistant may wish to explain to the patient the benefit of the "prescribed" recheck interval based on the patient's individual needs. It is important that the interval be discussed and mutually agreeable.

2. The receptionist may wish to make reference to this prescription. Even at this early stage, this heightens **perceived** need and importance to the patient. The patient's **preferred** contact phone number should be obtained at this point.

3. As the patient's ongoing treatment continues, and upon the completion of the original treatment plan, the recheck message should be reinforced in a positive manner, clearly denoting the **benefit** to the patient and enhancing as far as possible their **desire** to return.

4. If lesions or conditions are being "observed," this should be clearly indicated to the patient and charted. The receptionist should be made aware of these notations to enable her to reinforce the perception of need for recall. This addresses the issue of self diagnosis, a prime reason for patient non compliance for recheck visits. Clinical information which would be of assistance to the receptionist should be dated and highlighted in the chart. Patient fears and con-



cerns voiced to the clinical staff should be handled likewise. In short, anything which can serve to increase the receptionist's repertoire to enhance recall compliance should be noted. Having the clinical information available to the receptionist when she is booking or confirming the appointment will allow her to use terminology such as, "Your prescribed recheck appointment is/will be due _____. I know that Dr. _____ will want to pay particular attention to your (condition) that was of concern at your last visit."

The receptionist may wish to chart and highlight any concerns or desires expressed to her by the patient. This will allow the dentist/hygienist to promptly address these areas at recall. The patient, of course, will appreciate this personalized attention.

5. The receptionist may wish to verbally tie the date of the patient's "recheck" or "interim assessment" to an easily remembered date such as "close to Christmas, Valentine's Day, Mother's Day, patient's birthday." Using the name of the month and reason is far more effective than just saying, "We'll see you in six months!"

6. When using cards, they should be made as personal as possible. Attention getting cards are available commercially or you may wish to design your own. When the receptionist signs the card with her first name, it increases the perception of personalization and the patient will know who to ask for. It also ensures that the patient call-back will be properly directed to the key person responsible for this area.

A rolodex system, with cards filed chronologically as to recall month, is effective organizationally. Such cards must contain all pertinent administrative information. When pulled monthly, the card is paper-clipped to the chart. Thus the receptionist has all of the clinical and administrative information at her fingertips. In addition to the previously men-

tioned benefits, having the chart available allows for ease of notations pertaining to attempts to initiate recall activity. This information is useful to the dentist/manager in monitoring employee recall activity and for medico-legal purposes. At the conclusion of the recall, the rolodex card is redated and refiled.

If a patient objects to scheduling a recheck appointment, the receptionist should attempt to determine the **real** reason. If it is financial, for example, suitable payment arrangements may easily solve the concern. Another prime reason for patient recall reluctance is patient embarrassment concerning their oral hygiene efforts. Scripting again helps. The receptionist may wish to say something like, "Many of our patients have difficulty with their flossing; we'll be sure to help you at this visit."

Nobody appreciates being browbeaten. Patients who do not attend regularly can still be excellent referral sources. It is important to avoid embarrassment. After several refusals by a patient, despite her best efforts to assist, the receptionist may wish to say, "I am calling again about your recheck visit that Dr. _____ has prescribed, to determine whether there is anything that our office can do to assist you to maintain your oral health. This will likely prompt an explanation from the patient as to their refusal to return for recheck visits.

Computerization has facilitated recall administration. It is important, however, to ensure that these same basic concepts are incorporated when using automated follow-up.

In the Fall 1989 *Journal of the Ontario Dental Nurses and Assistants Association*, their past president, Lorna Akervall, C.D.A., has published an excellent short article on this topic. In addition, the 23-chapter Dental Practice Management Manual of the C.D.A. Committee on Student Affairs has a new chapter devoted to this subject. This manual is available from the C.D.A.

The monitoring of life support systems in hospitals is routine. How closely are you monitoring this life support system in your practice? ▴

Dr. Brandon is Assistant Professor, Division of Community Dentistry, U.W.O., London, and is responsible for their senior course in the Business of Dentistry. He is the practice management editor for the C.D.A. Journal. He is also the advisor to the CDA Committee on Student Affairs which has produced the 24-chapter Dental Practice Management Manual distributed to all Canadian dental. This manual is available for sale to CDA members through CDA's order desk.

Key Concept Phrase: "The recall system is the life support system of any practice." (p. 1, para. 2)

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Jim Gommerman
Burlington, Ont.

Contrary to popular belief, the management of a dental office is not the complex monster many dentists believe it to be. Many dentists fail to break down the management aspects of the practice into its component parts, as is done in general business.

It must be remembered that dentistry has a business component to it and that it is no different than a small commercial enterprise. A small business has its existing customers which it hopes, through superior quality products, good service and competitive pricing, to retain. It also hopes to attract new customers through referrals from that customer base. It seems to me that this sounds quite a lot like a dental office! Shouldn't a dental office, therefore, use the same management tools to analyze its performance as a small business?

There are three separate and distinct, yet *interrelated* categories within which all activities in a dental practice can be grouped. These classifications are: **Time Management**, **Treatment Management** and **Cash Management**. Every activity in a dental practice can be placed into one of these areas. All too frequently though, dentists neglect the basics of practice management. In my years of involvement with the dental profession, I have found that you could tell a lot about the practice by observing the condition of the front desk reception area and how efficiently it was operating. If effective manual management systems are not in effect and the office is disorganized, it may not be the time to computerize. The question is — "Is automated chaos better than manual confusion?" I presume the majority of you will say, No! Regardless of whether automation is in the immediate plans, dental offices should review three basic functions at least once a year, to ensure they are operating efficiently.

Let's take them one at a time.

Time Management

Several things fall into this section. The most obvious one is provider time, which is controlled by the appointment book. This area is critical, because it regulates the amount and *Mix* of treatment delivered to your patients. Dentistry is a demanding profession and many calamities are caused by overwork, the consequence stress and anxiety. Scheduling is



Jim Gommerman

nothing but the effective flow of patient treatment in a practice — i.e. — units of time multiplied by hourly rate.

It is easy to say "I can't work any longer hours." And to say that would, in most cases, be correct. But perhaps you could be working smarter. Are there tasks which could be legally delegated to others, in your practice? Delegation is a tool. When used properly, it not only frees up time, but also imparts a feeling of importance and worth to your staff.

I consider the ultimate in delegation stories to be the one involving what many Americans consider to be the greatest football game ever played, between the Green Bay Packers and Dallas Cowboys at Lamdon Field in 25 degree below zero weather in 1962. With Dallas leading by six points and seconds to go, Green Bay was at Dallas' one-yard line. Bart Starr called a time out and went over to Vince Lombardi on the sidelines. "Well, coach, what do you want me to do?" Starr asked. Lombardi stared at Starr with that famous gaze of his and uttered one word — "Win!"

And did he delegate! Starr went back toward the huddle only to be met by Jerry Kramer, the All-Pro guard, who anxiously asked what the coach had said. "He said to win," said Starr, "and furthermore, we're going to run the play right behind you!" Now the responsibility was delegated to Kramer. History records that Kramer knocked down half of the Dallas defensive line, creating a hole for Starr to run through for a touchdown that won the game. The important lesson is that Lombardi delegated one of the most important decisions of his life and was rewarded by players who carried out that decision.

Are you a manager who is afraid to delegate? If you are finding that you are doing too many things which seem unimportant, stop to evaluate what can be delegated to others, and save your precious time!

Treatment Management

The term "treatment management" is so all-embracing that I believe it should be defined. With respect to a dental office, the term has a double-edged meaning; the professional and the business side of the practice. I will restrict my comments to the business aspects.

There are those clients (patients) who exist and those who will become clients (patients). To protect those clients who exist, small businesses follow up to ensure they are pleased with their services and continue to patronize their company. This is a common and expected practice and the most successful companies are very good at it. These companies receive many referrals by word of mouth because of the way they treat their existing client base, the most effective method of marketing known to man. Similarly, the most successful dental practices I have encountered do an outstanding job at recalling their existing patients. An effective follow-up system is mandatory! Recall patients can be grouped into the month of recall or prebooked at the last appointment, whichever is most comfortable for the office. What the office does when a patient delays a recall appointment or cancels one that is prebooked, is crucial. It is at this point most patients are lost to the practice. Giving up on the patient at this time is like saying, "I don't care." Therefore, an effective follow-up system at this period should be implemented.

Any flourishing business will list the reasons for their prosperity in the following order: 1. Quality service. 2. Quality product, and 3. Fair price. Should you object to service being the precursor of product, ask yourself whether you would be happy dealing with a company which does not give good service, even though they may have an extraordinarily good product?

When speaking of this section, the obvious comes to mind. Accounts Receivable and Accounts Payable, commonly

called Cash Flow. These are very measurable areas to evaluate, however, many offices ignore them, particularly the accounts payable.

Accounts Receivable

To assess these, a simple aging process should be used. If your receivables are equal to your previous month's fees, they are 30 days old. If they are greater, then it is time to look into why, and how they can be collected more efficiently. The office should have a policy to determine what constitutes an overdue account. Once the offenders are identified, this



policy should be enforced with increasing diligence. While collecting accounts is not a favored task, only a small number will be hard core. The key is a disciplined and

standardized approach. The older the account, the less likely it will be collected.

Accounts Payable

"I can't be overdrawn, I still have cheques left!" A common problem with offices which have cash flow difficulties is they do not plan. Part of the planning process is reviewing past financial history. In most cases, dentists do not keep their own books and therefore must wait for their accountants to assemble the cheque stubs in proper order before they are able to digest their past expenses. An excellent tool for overcoming this problem is a One-Write chequing system which records the cheque automatically onto a journal sheet. This type of system is a *must* for controlling expenditures and proper planning. Setting up a simple budget is one of the easiest things to accomplish, although few take the time necessary for it.

First buy a 13-column accounting pad from your local stationery store. Head up the columns with the months of the year and a total. On the left side of the page, list the items to be budgeted, e.g. fees and expenses. Finally, from your previous years, determine the amounts and do the necessary additions. By calculating your daily production from previous day



sheets, you can estimate your average daily production. Next, plan out with the aid of a calendar, which days you will work in that period. By multiplying the two together, you will arrive at your gross fees. What business would start its fiscal year without a plan of attack?

To summarize, you may be able to find more time by Delegating. Review your office procedures to ensure your recall system is working properly. Finally, plan your cash flow so that you are not placed in embarrassing cash binds. In other words, Manage the T.T.C. Δ

Jim Gommerman owns a Safeguard/Mardan Business Systems distributorship located in Burlington, Ontario. Previous to this, he served for 16 years in a senior capacity with a major professional leasing company where he had the opportunity to assess dental practices for credit purposes. In addition, he served in the capacity of Administrator for a very large dental group practice in Winnipeg with a staff of 30.

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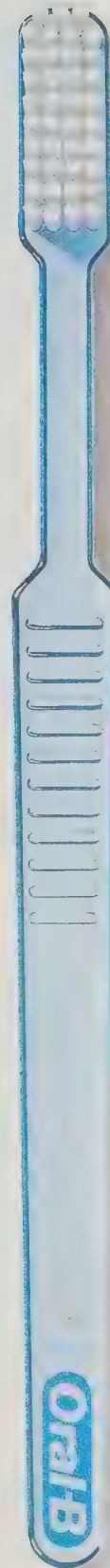
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Efficacy of chlorhexidine and sanguinarine mouthrinses on selected salivary microflora

J.N. Hoover, BDS, PhD

Saskatoon, Sask.

T. To, PhD

Toronto, Ont.

ABSTRACT

The antibacterial effects of chlorhexidine and sanguinarine on selected salivary microflora were evaluated in 15 healthy young adults. The experiment was performed in a cross-over manner enabling both mouthrinses and the saline control to be tested on all 15 subjects for periods of one week separated by three week intervals. The total bacterial count and selected bacterial genera were followed in saliva samples taken just before the first rinse, and on three occasions after the last rinse. Statistically significant reductions in the salivary levels of *S. mutans* and *S. salivarius* were obtained with chlorhexidine but not with sanguinarine, and rinsing twice a day with sanguinarine, according to the manufacturer's instructions, did not significantly reduce the total bacterial count. Additional well controlled, longer-term studies are required before any firm conclusions can be drawn regarding the effect of sanguinarine on salivary microorganisms.

SOMMAIRE

Chez 15 jeunes adultes en bonne santé, on a mesuré le pouvoir antibactérien de la chlorhexidine et de la sanguinarine sur des microflores salivaires choisies. L'expérience s'est opérée par croisement afin de pouvoir vérifier sur les 15 sujets les rince-bouche et le contrôle de la teneur en sel durant des périodes d'une semaine séparées par des intervalles de trois semaines. Le compte global et les genres de bactéries choisies ont été suivis de prélèvements de salive juste avant le premier rinçage et, à trois reprises, après le dernier rinçage. Avec la chlorhexidine mais

non avec la sanguinarine, on a obtenu des réductions statistiquement importantes des *S. mutans* et des *S. salivarius*. De fait, un rinçage avec de la sanguinarine deux fois par jour, conformément aux instructions du fabricant, n'a pas réduit de façon significative le nombre global des bactéries. Il faudra d'autres études approfondies et exhaustives avant de tirer des conclusions définitives touchant le pouvoir de la sanguinarine sur les microorganismes salivaires.

Introduction

Antibacterial oral rinses may have an important role as an adjunct in the control of some forms of gingivitis and caries. Chlorhexidine, an agent that has been incorporated in oral rinses and dentifrices, possesses *in vitro* and *in vivo* bactericidal activity against a wide variety of microorganisms including *S. mutans*.^{1,2} Sanguinarine is a benzophenanthridine alkaloid obtained by the alcoholic extraction of powdered rhizomes of the blood root plant *sanguinaria canadensis*.³ This agent has been claimed to have an effective antiplaque activity and to be retained at a high concentration in the oral cavity, in dental plaque and, to a lesser extent, in saliva for several hours after rinsing.⁴

The aim of this study was to compare the effects of chlorhexidine and sanguinarine containing mouthwashes on *S. mutans*, *S. salivarius* and total bacteria present in the salivas of young adults.

Material and Methods

Fifteen healthy dental students, 20-30 years of age with complete dentitions, no clinically detectable caries and a low degree or absence of gingivitis were randomly divided into three groups of five students. Prior consent was obtained from each student, none of whom were

taking any medication at the time of the study or gave a history of recent antibiotic therapy. Each group was assigned a pre-coded bottle containing either 0.2 per cent w/v chlorhexidine gluconate, 0.03 per cent w/v sanguinaria extract or 0.4 per cent saline (control agent).

The students were instructed to rinse their mouths twice a day with the mouthwash according to the manufacturer's instructions for a period of one week, followed by a three week rest period to allow the oral microflora to return to normal. No restrictions were placed on their routine oral hygiene practice. However, they were advised not to use any mouthwash other than that provided. Paraffin-stimulated saliva was collected just before the first rinsing and half an hour, six hours, and twenty-four hours after the last rinse. The saliva samples were transferred to a transport medium (RTF made according to Syed and Loesche⁵) prior to microbiological assessment.

The study was performed in a cross-over manner, enabling each mouthwash to be tested on all 15 students at three-week intervals. The saliva samples were made up into 10-fold dilution series using RTF, which had been anaerobically prepared and stored. Aliquots (0.1 mL) of each solution was spread uniformly on the surface of pre-reduced enriched brucella agar (BBL, Cockeysville, Md, USA) for anaerobic incubation for five days.

The total number of colony forming units on these plates was used to estimate the total bacterial concentration of the saliva. The brucella agar was enriched with 5 per cent defibrinated horse blood, 0.5 per cent hemolyzed blood and 5 mg menadione, prepared according to Holdeman and Moore.⁶ *S. mutans* colony counts were done on MSB-medium⁷ which was incubated for 48 hours in

TABLE I

Reductions of Total Number of Bacteria in Saliva After Rinsing with Different Agents Twice a Day/Week (Logarithm of the CFU $\pm$ SD/mL of Saliva)

	Rinsing agent			P-Value for Comparison		
	Saline (SA)	Sanguinarine (SG)	Chlorhexidine (CH)	SA vs SG	SA vs CH	SG vs CH
Total Plate Count						
Before:	9.2 $\pm$ 0.8	9.2 $\pm$ 1.0	9.4 $\pm$ 0.7	NS	NS	NS
At 1/2 hour	8.7 $\pm$ 0.7	8.3 $\pm$ 0.8	7.1 $\pm$ 1.1	*	**	**
At 6 hours	8.7 $\pm$ 0.3	8.5 $\pm$ 0.6	7.5 $\pm$ 0.9	NS	***	***
At 24 hours	8.8 $\pm$ 0.8	9.0 $\pm$ 0.7	8.3 $\pm$ 0.9	NS	NS	NS

NS = Not Statistically Significant
 * = P < 0.05
 ** = P < 0.01
 *** = P < 0.001

95 per cent N₂ and 5 per cent CO₂ after being inoculated. *S. salivarius* colony counts were done on mitis-salivarius agar, incubated the same way as the MSB plates. Statistical analysis of the results was carried out using the paired t-test. A p-value of less than 0.05 was regarded as statistically significant.

Results

Table I illustrates the total number of bacteria in saliva after rinsing with the different agents twice a day for one week. Rinsing with chlorhexidine caused a significant reduction six hours after the last rinse (p < 0.001). However, at 24 hours after the last rinse the reduction was not significant, probably due to the rapid recovery of the major oral salivary flora. Rinsing with sanguinarine twice a day, as per manufacturer's instructions, did not reveal a demonstrable reduction in the

total bacterial count at any time point.

Compared to sanguinarine and the control agent, rinsing with 0.2 per cent chlorhexidine twice a day significantly reduced *S. mutans* and *S. salivarius* levels in saliva, (Table II). This reduction persisted in salivary samples taken at 24 hours after the last rinse.

Discussion

The present study compared the efficacy of 0.2 per cent chlorhexidine mouthrinse with the recently introduced sanguinarine mouthrinse in reducing the salivary levels of selected microorganisms. The findings showed a statistically significant reduction in the levels of *S. mutans* and *S. salivarius* in saliva after rinsing for a week with chlorhexidine, but not with sanguinarine and confirm earlier reports of the high susceptibility of *S. mutans* to chlorhexidine.^{8,9} An assumption that this

reduction of *S. mutans* in saliva is accompanied by a similar decrease in *S. mutans* on tooth surfaces is supported by the findings of Emilson⁸ who demonstrated the existence of a significant relationship between the levels of *S. mutans* in saliva and the proportions of the bacteria in dental plaque.

The decrease in *S. mutans* levels in saliva found after rinsing with chlorhexidine, but not sanguinarine, can be attributed to the fact that the oral retention level of sanguinarine is considerably lower than that of chlorhexidine.¹⁰ However, it has also been reported that sanguinarine is retained in plaque at high levels for several hours after rinsing.^{3,4}

In a recent study, Gazi¹¹ compared the effect of rinsing with chlorhexidine with rinsing and topical application of sanguinarine on plaque accumulation and demonstrated a significant reduction in

TABLE II

Zero Sample and Reduction of *S. mutans* and *S. salivarius* in Saliva After Rinsing with Different Agents Twice a Day/Week (Logarithm of the CFU $\pm$ SD/mL of Saliva)

	Rinsing agent			P-Value for Comparison		
	Saline (SA)	Sanguinarine (SG)	Chlorhexidine (CH)	SA vs SG	SA vs CH	SG vs CH
<i>S. mutans</i>						
Before:	5.4 $\pm$ 1.1	5.6 $\pm$ 1.1	5.4 $\pm$ 0.9	NS	NS	NS
At 1/2 hour	5.3 $\pm$ 1.1	5.4 $\pm$ 1.0	3.7 $\pm$ 0.9	NS	***	***
At 6 hours	5.6 $\pm$ 1.2	4.7 $\pm$ 0.9	3.0 $\pm$ 0.8	NS	***	***
At 24 hours	5.2 $\pm$ 1.2	5.5 $\pm$ 1.2	3.9 $\pm$ 1.0	NS	***	***
<i>S. salivarius</i>						
Before:	7.3 $\pm$ 1.0	7.6 $\pm$ 0.8	7.5 $\pm$ 0.8	NS	NS	NS
At 1/2 hour	7.4 $\pm$ 0.9	7.1 $\pm$ 0.8	5.5 $\pm$ 1.9	NS	***	***
At 6 hours	7.2 $\pm$ 0.8	7.1 $\pm$ 0.6	5.8 $\pm$ 2.0	NS	**	***
At 24 hours	7.3 $\pm$ 1.2	7.8 $\pm$ 0.8	6.7 $\pm$ 1.1	NS	**	**

NS = Not Statistically Significant
 * = P < 0.05
 ** = P < 0.01
 *** = P < 0.001

plaque accumulation after rinsing with chlorhexidine compared with topically applied sanguinarine and he concluded that chlorhexidine was a superior antiplaque agent. Furthermore, recent, well-controlled clinical trials involving sanguinarine-containing dentifrices^{12,13} and mouth rinses^{14,15} do not appear to confirm its antiplaque properties reported in previous studies.^{10,16} Moreover, the reported ability of sanguinarine to prevent and reduce plaque and gingivitis cannot be attributed solely to its use, due to the presence of zinc in the formulation. Certain metal ions, including zinc, have been demonstrated to have an inhibitory effect on bacteria.¹⁷ Although sanguinarine has some advantages over chlorhexidine in not staining tooth surfaces and in possessing a more acceptable taste, additional longer-term studies designed to meet standards such as those described by the ADA Council of Dental Therapeutics¹⁸ should be undertaken before any firm conclusions are drawn concerning the efficacy of sanguinarine.

Acknowledgement

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Dr. J.N. Hoover, Department of Diagnostic and Surgical Sciences, College of Dentistry, University of Saskatchewan, Saskatoon, Sask. S7N 0W0.

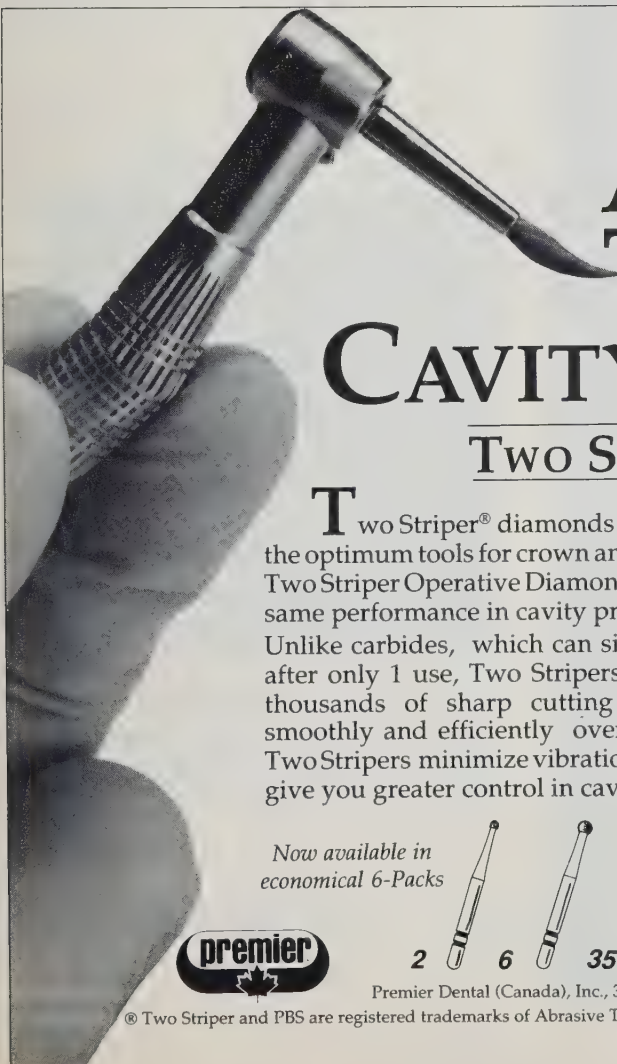
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Reprint requests to Dr. Hoover.

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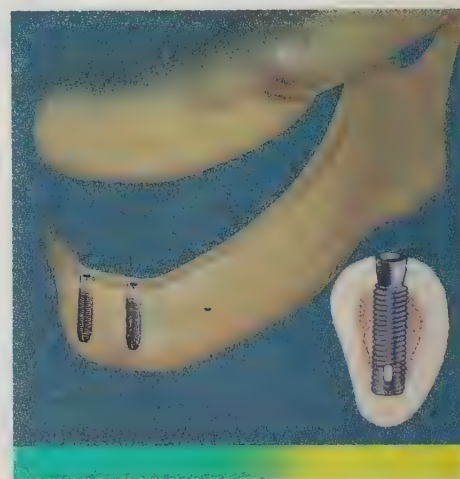
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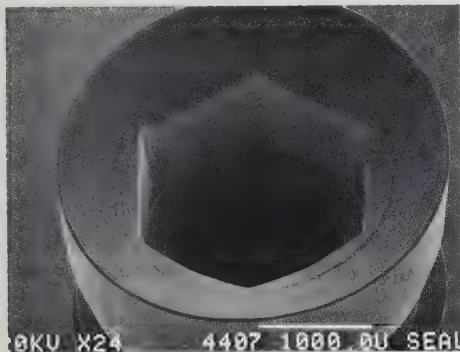
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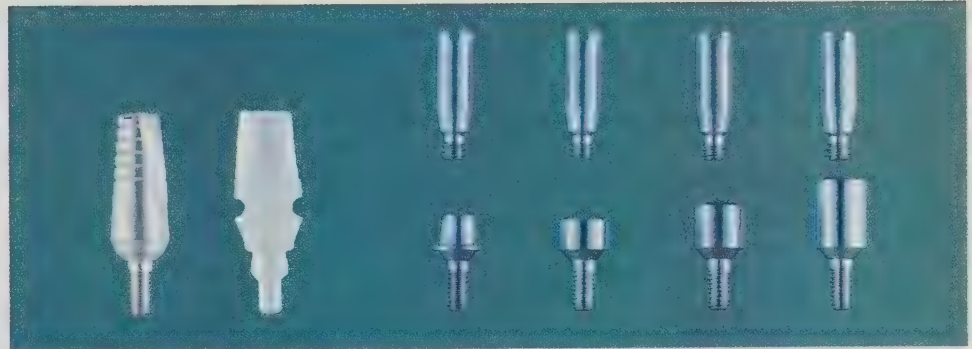
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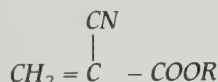
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Cyanoacrylates in dentistry: A review of the literature

E.L. Herod, MS, DDS
Lehigh Acres, Florida

INTRODUCTION

Cyanoacrylates were developed in 1957 by Coover and Shearer¹ of the Eastman Kodak Co. During the 1960s and early 1970s, considerable research was conducted on potential dental uses of these unique materials.²⁻⁴ Cyanoacrylate monomers have the general formula:



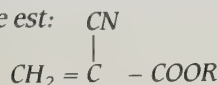
where R may be, for example, a methyl, ethyl, propyl or butyl group. These materials rapidly polymerize and bond without the aid of a catalyst. They also bond to moist tissue while providing a strong hemostatic effect. The adhesive setting time is relatively short.

While cyanoacrylates are authorized for use by the Canadian authorities, they are not approved for use in the United States. Because of this and the development of materials such as glass ionomer cements and composite resins, interest in cyanoacrylate use for dentistry waned after the initial enthusiastic response. Even so, each year, the dental literature contains a few papers which continue to examine potential uses for these materials. While the research of the late 1970s and 1980s is scant in comparison to the earlier work, there is still enough new research activity to warrant an update of the literature.

It is the purpose of this paper to re-examine some of the early work and to provide a literature update. This paper will focus on the biocompatibility and histotoxicity of these materials along with their soft tissue and odontogenic applications.

SOMMAIRE

Les cyanoacrylates ont été mis au point en 1957 par Mrs Coover et Shearer¹ de la société Eastman Kodak Co. Durant les années 1960 et au début des années 1970, on a fait beaucoup de recherches sur les usages possibles de ces matériaux exceptionnels en médecine dentaire²⁻⁴. En général, la formule des monomères de cyanoacrylate est:



dans laquelle R peut représenter, par exemple, un groupe de méthyle, d'éthyle, de propyle ou de butyle. Ces matériaux se polymérisent et adhèrent rapidement à une surface sans l'aide d'un catalyseur. Ils adhèrent également à des tissus humides tout en offrant un grand pouvoir hémostatique.

Les autorités canadiennes permettent l'utilisation des cyanoacrylates, mais non les États-Unis. Pour cette raison et à cause de la mise au point de matériaux comme les ciments en verre ionomère et les résines composites, l'intérêt pour les cyanoacrylates en médecine dentaire s'est vite dissipé après l'enthousiasme du début. Pourtant, chaque année, on trouve dans les publications dentaires des articles qui continuent à parler des possibilités de ces matériaux en médecine dentaire. Bien que les recherches menées à la fin des années 1970 et durant les années 1980 soient peu nombreuses par rapport à celles qui ont été faites antérieurement, il y en a eu assez pour justifier une mise à jour.

Le but de cet article est donc de réviser une partie des premiers travaux de recherche et de présenter une mise à jour sur les articles publiés depuis. De plus, on parlera de la biocompatibilité et de l'histotoxicité de ces matériaux relativement à leurs applications odontogènes et à des tissus mous.

Biocompatibility and histotoxicity

Early studies^{5,6} on the tissue biocompatibility of cyanoacrylates focused on the first compound developed, the methyl homologue. Histotoxicity studies of this material were largely disappointing. It produced morbid necrosis, edema and was not well tolerated by tissue.

Studies exploring the biologic receptivity of other cyanoacrylate homologues were conducted by Bhaskar et al.⁷ In addition to methyl cyanoacrylate, they examined the ethyl, propyl and butyl monomers. Utilizing experimentally produced tongue injuries in rats, they

sprayed a fine mist of the different cyanoacrylate homologues onto the injured sites. Clinical and histological changes were evaluated at different stages of healing. All of the homologues produced immediate hemostasis. Generally, the healing process was seen to progress through the usual stages of granulation and scarring.

In 1966, an examination of the hexyl, heptyl and octyl cyanoacrylates⁸ showed a definite correlation between the length of the alkyl side chain and histotoxicity of the compounds. The higher homologue compounds were better tolerated by the tissue than the lower homologues. Higher homologues are also more elastic and more tissue compatible.⁹ Following these initial studies, research on biocompatibility focused primarily on the butyl cyanoacrylate homologue.

In 1974, Miller et al.¹⁰ examined the wound healing of mucogingival flaps when secured with the butyl cyanoacrylate tissue adhesive. While clinically the butyl cyanoacrylate did not appear to impair the healing process, histologically, healing was impaired by a foreign body reaction when the material was placed under the tissue flap. When the adhesive was placed on the outside of the flap, healing was similar to the control areas.

Greer¹¹ studied the histotoxicity of isobutyl-2-cyanoacrylate when it was employed as an oral hemostat. Rats were used in this study with the cyanoacrylate placed deep in a socket and on superficial tissue at maxillary molar extraction sites. Values were obtained for hematocrit, total white cell count and differential blood count. Alterations in these blood parameters could not be seen clinically, systemically or histopathologically as a result of the isobutyl-2-cyanoacrylate insult. However, they did find increased lengthy giant-cell responses and delayed healing when the material was placed deep in the socket. Reactive foreign-body foci and latent healing were much less evident when applied only to the surface of the extraction site. While cyanoacrylate-induced neoplasia has been a concern,¹²⁻¹⁴ no evidence of neoplasia could be found at any period during the nine-month study.

Galil et al.¹⁵ used an *in vitro* technique to evaluate the cytotoxic effect of two cyanoacrylates. An industrial type was compared with Histoacryl Blue (a biological tissue adhesive available in Canada). Both cyanoacrylates showed some evidence of cytotoxicity but cell death was a "great deal more extensive" with the industrial material. Their results suggested that soluble degradation products of cyanoacrylate are responsible for the cytotoxic effects on fibroblasts.

In 1985, Javelet and associates¹⁶ compared isobutyl cyanoacrylate with sutures to close mucosal incisions in monkeys. The sutured group had less inflammation than did the adhesive group. With clinical observations, both groups appeared to be completely healed at 10 and 20 weeks. However, histologic evaluation revealed mild to moderate inflammation in both groups at 10 weeks and mild inflammation in the cyanoacrylate group at 20 weeks. These researchers speculated that the presence of mild inflammation in the adhesive group at 20 weeks may indicate a slow tissue response in metabolizing cyanoacrylate.

Several studies¹⁷⁻¹⁹ examined the effects of butyl cyanoacrylate on bacteria and have shown that the growth of several types of bacteria is inhibited when the polymer is applied to freshly plated Petri dishes. The mechanism for this bacteriostatic action was not explained.

Pulp tissue responses to cyanoacrylate have also been studied.²⁰⁻²² These will be discussed in the endodontic section of this paper.

Periodontic and oral surgery applications

Several studies²³⁻²⁵ reported favorable results when using cyanoacrylates with soft tissue wound management. Miller et al.¹⁰ studied the wound healing in dogs of mucogingival flaps secured with cyanoacrylate. Both the N-butyl and isobutyl homologues appeared favorable for non-suture fixation of soft tissue when the material was placed on the outside of the flap.

In 1974, Forrest²⁶ reported on the use of cyanoacrylate in human periodontal surgery. He evaluated more than 300 patients over a three-year period. Patient acceptance of the technique was very good. Clinically, bleeding was rapidly controlled. Healing appeared to be as good as with sutures and no untoward reactions were discovered, either locally or generally. Occasionally it was difficult to apply the material at some posterior sites, but in general, the application of

the adhesive saved considerable time when compared with various suturing techniques.

An extensive study was reported by Levin et al.²⁷ when cyanoacrylate was evaluated as a dressing following a variety of periodontal procedures. Biopsies of the involved areas were performed in the first 350 patients to determine any pathology. After 872 periodontal procedures in 725 patients, the isobutyl cyanoacrylate was found to be well tolerated by the tissue and permitted uneventful, normal healing. No side effects from the material were observed in any of the subjects.

It is surprising that clinical research on the use of these materials as a periodontal dressing dropped off significantly following these successful reports. However, in 1985, Javelet and his colleagues¹⁶ conducted a comparison of the clinical and histological effects of sutures and isobutyl cyanoacrylate in closing mucosal incisions in monkeys. While cyanoacrylate and sutures did not produce similar inflammatory responses (previously discussed), the authors felt that isobutyl cyanoacrylate could provide an additional and possibly superior method for closing incisions due to the advantages of application ease, immediate hemostasis and the elimination of follow-up visits for removal.

In oral surgery, cyanoacrylates have been used primarily as a post-extraction dressing and a hemostatic agent.^{23,28} Eklund and Kent²⁹ used isobutyl-2-cyanoacrylate as a post-extraction dressing following 70 extractions. These were compared with 70 control extractions. In their evaluation, the cyanoacrylate required much less time for initial hemostasis and was also superior in ease of sealing sockets. Neither treatment method was superior in retention of the clots, sequestration of bone, comfort rate, postoperative bleeding, edema or tenderness. The differences in healing rates and in minimizing inflammation were not statistically significant.

Greer¹¹ studied cyanoacrylates as an oral hemostat in rats and found the isobutyl-2-homologue to be an effective oral hemostat. Post-extraction hemorrhage was rapidly retarded. While deep placement of the adhesive resulted in retarded healing, superficial placement of the material showed little wound-healing retardation.

Besserman³⁰ evaluated cyanoacrylate spray in the treatment of patients with prolonged bleeding. In 24 out of 27 cases, the cyanoacrylate spray was sufficient hemostatic treatment. While the study

demonstrated the efficacy of cyanoacrylate as a hemostatic agent, the author expressed the opinion that the material should have limited employment in human oral surgery because of possible histotoxic tissue responses.

A 1982 study³¹ examined the use of cyanoacrylate spray as part of a treatment approach to severe oral bleeding. The patients in this study had hepatocellular disease. The use of systemically administered antifibrinolytic agents, together with the local use of Gelfoam, cyanoacrylate spray and intraligamentary anesthesia made bleeding-inducing procedures possible without exaggerated hemorrhage. This approach avoided the need for transfusions and hospitalization for dental treatment in these patients.

In addition to the aforementioned uses, other periodontal and oral surgery applications have been reported. Butyl cyanoacrylate has been applied as a protective covering over oral ulcerations.¹⁷ Oral ulcers are usually located on movable portions of the oral mucosa (cheeks, vestibule and lips). When these areas were sprayed, it was found that the butyl cyanoacrylate did not adhere as firmly as it did to the firm nonmobile areas. While the material did adhere to the ulcerated area, it usually peeled off easily and was lost on an average of two days later. Patients did, however, report relief from pain and were able to eat with less discomfort when the cyanoacrylate covered the ulcer.

In an effort to slow the rate of degradation of a porous calcium sulphate dihydrate implant material, Frame³² applied a thin coating of n-butyl-2-cyanoacrylate as a protective covering over the material. Tissue acceptance of this composite was evaluated using rabbit skulls. While the pattern of ingrowth of bone with the implants was different than that of controls, the material was well tolerated by the tissue and did not slow bony healing.

In a 1988 case report by Shultz et al.,³³ the successful treatment of an arteriovenous malformation of the mandible with the injection of cyanoacrylate via a miniballoon flow-directed catheter was described. The authors felt this method could conceivably replace surgery as a primary method of dealing with these life-threatening entities.

Preventive and restorative applications

Interest in the use of adhesives to seal pits and fissures as a method of caries prevention developed in the 1960s. Cueto and Buonocore³⁴ published one of the early studies evaluating methyl-2-

cyanoacrylate and a powdered filler consisting of siliceous ingredients as a pit and fissure sealer. The results were promising. After one-year of use, they reported an 86.3 per cent reduction in caries when sealed teeth were compared with control teeth in the same mouths. Retention of the adhesive was also fairly good with 80.2 per cent of the treated teeth being completely covered after six months. Follow-up studies^{35,36} have likewise demonstrated efficacy when using cyanoacrylates as a sealant in caries prevention.

During this same time, however, many different materials were being considered as potential sealants. The use of cyanoacrylates in this capacity soon lost favour to improved techniques and materials.

In restorative dentistry, stainless steel pins are frequently used for the retention of amalgam and composite resin restorations. Pin restoration is usually accomplished by cementing the pin into a pin-channel prepared in sound dentin or by the use of self-threading pins. Several studies³⁷⁻³⁹ have evaluated the cyanoacrylates as potential pin cement. In virtually every study, when the cyanoacrylates were compared with other cements and the self-threading pins, they were found to be the least retentive. Most cyanoacrylate failures occurred at the cement-dentin interface. Because of the superior retentive aspects of other cements and self-threading pins, cyanoacrylates cannot be recommended for this procedure.

Several studies have been conducted to evaluate the bonding capacity of the cyanoacrylates to dentin and enamel.⁴⁰⁻⁴³ Beech⁴⁰ found that the methyl, ethyl and isobutyl-2-cyanoacrylate formed strong bonds with dentin, acid treated enamel and two polymeric restorative materials under aqueous conditions. The adhesion to dentin was probably a result of covalent bonds being formed with the organic constituents of the dentin. No significant bond was formed with unetched enamel.

Brauer et al.⁴¹ examined the bonding of acrylic resins to dentin with 2-cyanoacrylate esters. They found the isobutyl ester was most effective for bonding dentin to acrylic resin. Their study also reported that the bond strength increased greatly if the dentin was pretreated with 1 per cent acid solution, and bond strength decreased with prolonged water exposure.

Two studies^{42,43} published in the early 1980s evaluated the use of these materials to adhere composite resins to tooth structure. In the study by Fukushi and Fusayama,⁴² cyanoacrylate treat-

ment of the cavity wall for composite resin restorations failed to maintain adhesion when wet. Causton and Johnson⁴³ used ethyl 2-cyanoacrylate to bond composite restorative material to dentin and found bond strength greatly increased if the surface of the dentin was made mechanically retentive by use of a mineralizing solution. They also reported that bonds were strongest with composites having the lowest coefficient of thermal expansion and lowest water absorptions.

With the advent of a wide variety of phosphorated dentinal bond resins, the interest in cyanoacrylate for bonding has diminished.

As the preceding discussion has illustrated, the use of cyanoacrylates in preventive and restorative dentistry seems to be out of vogue. However, there have been two new applications of these materials that should be considered. Neihart⁴⁴ described a procedure that takes advantage of the copolymerization of methyl methacrylate and methyl-2-cyanoacrylate. He found that the combination of these materials was useful in repairing broken veneer facings.

Javid and his colleagues⁴⁵ recently reported on the use of cyanoacrylate as a treatment for hypersensitive dentin and cementum. In a 6-week study, cyanoacrylate had an immediate desensitizing effect on hypersensitive dentin. In their study, cyanoacrylate was statistically more effective than sodium fluoride in reducing sensitivity to cold air stimulation.

Endodontic applications

Initial use of cyanoacrylates for endodontic purposes focused on the pulpal response to these materials. In a study by Bhaskar and associates,²⁰ pulp exposures in miniature swine were treated by capping the exposed tissue with either isobutyl cyanoacrylate or calcium hydroxide. Clinical and histologic analyses revealed that cyanoacrylate spray was easy to apply, produced immediate hemostasis, was well tolerated by pulp tissue, evoked less inflammation and did not show the usual zone of necrosis seen under the calcium hydroxide. These researchers also found the dentinal bridge was deposited directly on the cyanoacrylate dressing.

Studies on the pulpal response to isobutyl cyanoacrylate were then conducted on human teeth. A study by Berkman et al.²¹ concurred with the swine observations. Clinically, all the teeth responded favorably and the cyanoacrylate application maintained the viability of the pulpal tissue. It produced immediate hemostasis and promoted healing of pulpal tissue by reparative dentinal bridge formation.

There was little inflammatory response and no zone of necrosis beneath the adhesive. A similar pulp capping study conducted by Bhaskar and others²² confirmed these observations.

Agreement, however, was not complete. In a study by Nixon and Hannah,⁴⁶ the cyanoacrylate failed to produce a satisfactory dentinal barrier. This led to the 1987 study by Cvek and his associates,⁴⁷ who studied the effect of cyanoacrylates on hard tissue barrier formation in pulp-tomized monkey teeth. Seven of nine teeth treated with cyanoacrylate formed a hard tissue barrier, corroborating with the three aforementioned studies.²⁰⁻²² The barriers induced in this study were, however, discontinuous and permitted proliferation of pulp tissue into the coronal cavity. From this study, the authors concluded that cyanoacrylate could not be regarded as an adequate therapeutic alternative to calcium hydroxide.

Two other recent and interesting studies evaluating cyanoacrylates for endodontic use must be mentioned. In 1984, Torabinejad and associates⁴⁸ evaluated isopropyl cyanoacrylate as a potential root canal sealer and in 1988, Barkholder and others⁴⁹ examined the possibility of using cyanoacrylate as a retrograde root canal filling material.

In the 1984 study,⁴⁸ cyanoacrylate was compared with three commercial sealers when canals were filled with gutta percha. Results showed that the isopropyl cyanoacrylate group sealed apical openings significantly better than the other three sealers. These researchers concluded that cyanoacrylate has a potential as a root canal sealer.

In the study by Barkholder and associates,⁴⁹ cyanoacrylate was compared as a retrograde filling material with four other recognized retrograde techniques. It was found that teeth retrofilled with cyanoacrylate had the least amount of leakage. These researchers felt that cyanoacrylate may have potential use in this endodontic capacity.

Summary

A discussion of the uses of cyanoacrylates in dentistry and an update of the literature have been presented. The biocompatibility and histotoxicity of this material has been considered. Studies have shown that the higher homologues are more tissue compatible than the lower. Local tissue responses show histiocytic proliferation and formation of giant cells. The foreign body cell responses are more pronounced when cyanoacrylate is placed deep in an extraction socket and under tissue flaps when

compared with superficial application of the adhesive.

While cyanoacrylate-induced neoplasia has been a concern, long-term studies are needed to provide more light on this and other histotoxicity problems. Cyanoacrylates are bacteriostatic for many bacterial types.

It is apparent that cyanoacrylates could have some useful clinical applications in periodontics and oral surgery. They are very effective tissue adhesives and their use as a nonsuturing material would provide many advantages. Research indicates that use should be restricted to superficial application.

The hemostatic properties of this material have been confirmed in virtually every study, but it should be used judiciously for this purpose.

Several other potential periodontal and oral surgery applications were considered. It is expected that future research will examine new applications of the material for surgical use.

Preventive and restorative applications were also discussed, but unfortunately, these have not met with much success. Newer techniques and materials seem superior in this aspect of dentistry. Possible application may eventually be shown in the desensitizing of dentin and cementum.

Endodontic applications were also considered. While most studies indicate that cyanoacrylate would make an acceptable pulp-capping material, calcium hydroxide is still the material of choice. Cyanoacrylate has been considered as a possible root canal sealer and retrograde filling material. While these potential uses are of interest, more research in these areas is needed. Δ

Dr. Herod is engaged in private practice at 1001 South Loop Blvd., Lehigh Acres, Florida 33936, U.S.A.

Reprint requests to Dr. Herod.

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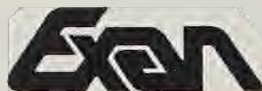
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Commonly prescribed medical drugs and their significance in dental therapy

Part I — the antibiotics

J. Hardie, BDS, MSc, FRCD (C)
Ottawa

INTRODUCTION

An essential aspect of dental treatment is the recording of an adequate medical history. Inevitably this includes the listing of therapeutic drugs. An appreciation of the pharmacological action of these medications, their adverse reactions, and their contraindications vis-a-vis dental therapy is an essential analysis of the medical history.

This report discusses such issues by reviewing drugs commonly prescribed by general medical practitioners. **Part I** includes a description of drug nomenclature and an analysis of the antibiotics most frequently used by family physicians; subsequent papers will discuss the remaining 20 drugs commonly prescribed by general medical practitioners.

SOMMAIRE

L'un des principaux points de l'exercice dentaire consiste à noter convenablement l'histoire médicale du sujet, ce qui comprend obligatoirement la notation des drogues prises à des fins thérapeutiques. Aussi une évaluation des vertus pharmacologiques de ces médicaments, de leurs effets contraires et de leurs contre-indications par rapport aux soins dentaires s'impose-t-elle lorsqu'on revoit le dossier médical d'un patient.

Dans cet article, on aborde ces points en révisant les drogues ordinairement prescrites par les médecins généraux. Dans la première partie se trouvent une description des listes de drogues et une analyse des antibiotiques le plus souvent utilisés par les médecins de famille. Dans les autres articles qui suivront, on parlera des vingt autres drogues communément prescrites par les praticiens généraux.

Nomenclature

A study of any therapeutic drug is complicated by the fact that



J. Hardie, BDS, MSc, FRCD (C)

most drugs have more than one name. During research and development, a drug is referred to by its chemical name. Once used commercially, the drug is given a proprietary or trade name, which is registered as a trademark by the pharmaceutical company and that name becomes

TABLE I

Drugs commonly prescribed by general practitioners in 1987

1. Amoxil
2. Ventolin
3. Ativan
4. Tylenol #3
5. Dyazide
6. Tylenol
7. Moduret
8. Lasix
9. Entrophen
10. Ampicillin
11. Naprosyn
12. Tetracycline
13. Halcion
14. Triphasil
15. Penicillin V
16. Erythromycin
17. Theo-Dur
18. Cloxacillin
19. Graval
20. Diabeta

the registered property of the company. Sometimes a brand name may be used instead of the proprietary name; however, technically, the brand name directly refers to the company marketing the drug.¹ The generic (or non-proprietary) name is the "official" name of the drug. Once the original manufacturer's patent on the drug has expired, competitors may produce the same drug with different proprietary names but the generic name remains unchanged. An example of this is the analgesic acetaminophen.²

Chemical Name: N-acetyl-p-aminophenol
Generic Name: Acetaminophen
Proprietary Names: Exodol, Panadol, Robiesic, Temptra, Tylenol

Survey Results

I.M.S. Canada is a company which has for some time conducted independent surveys of the prescribing habits of Canadian

TABLE II

Therapeutic classification

Antibiotic	Amoxil Ampicillin Tetracycline Penicillin V Erythromycin Cloxacillin
Bronchial dilator	Ventolin Theo-Dur
Anxiolytic	Ativan
Analgesic	Tylenol #3 Tylenol
Diuretic	Dyazide Moduret Lasix
Anti-inflammatory	Entrophen Naprosyn
Hypnotic	Halcion
Oral contraceptive	Triphasil
Antiemetic	Graval
Oral hypoglycemic	Diabeta

physicians. **Table I** lists the 20 drugs most commonly prescribed by family physicians. The list is compiled from information collected by I.M.S. from January to December 1987.³ In **Table II** the drugs are classified according to their major therapeutic action. For interest, **Table III** lists the 20 most frequently prescribed drugs in the United States during 1986.⁴

Dentists' Prescriptions

There appears to be no survey which discusses the prescribing habits of Canadian dentists. In a recent paper,⁴ Dr. S. Ciano states that the drugs primarily used in dentistry are local anesthetics, analgesics, antibiotics, and sedatives/tranquilizers. Less frequently used drugs include vasoconstrictors (excluding those in local anesthetics), corticosteroids, antihistamines, anticholinergics and muscle relaxants. The 10 drugs commonly prescribed by U.S. dentists are listed in **Table IV**. It is a safe assumption that the prescribing habits of Canadian dentists do not differ substantially from those of their United States colleagues.

The potential for interactions between drugs used in dental and medical treatment must be considered upon analysing the patient's medical drug regimen and proposed dental therapy.

Discussion

As is evident from **Tables I** and **II**, antibiotics are the most commonly prescribed drugs.

Antibiotics (general comments)

Antibiotics should be used to treat only established infections; however, they are often used in medicine and dentistry in a prophylactic capacity. Antibiotics have a low incidence of side effects,⁵ which may be one reason for their popularity. The significant adverse reactions relate to the development of resistant bacterial strains and allergic responses. Such reactions dictate that clinical judgement must be carefully exercised when antibiotics are prescribed. Oral candidiasis and black hairy tongue are not uncommon oral manifestations of broad spectrum and multiple narrow spectrum antibiotic therapy.⁶ The antibiotics prescribed by physicians tend not to be affected by the drugs used by dentists, however both groups should be aware that a bacteriostatic antibiotic may interfere with a bacteriocidal one. For example, the bacteriostatic tetracycline, occasionally prescribed by dentists (**Table IV**), may interfere with the bacteriocidal Amoxil, frequently used by physicians (**Table I**).

TABLE III

Most frequently prescribed drugs in the U.S.A. in 1986

1. Dyazide
2. Lanoxin
3. Amoxil
4. Tylenol + Codine
5. Tagamet
6. Xanax
7. Inderal
8. Lasix
9. Motrin
10. Tenormin
11. Valium
12. Keflex
13. Naprosyn
14. Darvocet-N
15. Premarin
16. Zantac
17. Synthroid
18. Lopressor
19. Theo-Dur
20. Procardia

Antibiotics (specific comments)

Amoxil — Generic name, amoxicillin: Is a broad spectrum, non-beta-lactamase resistant antibiotic. It is effective against susceptible strains of gram-negative *H. influenza*, *E. coli*, *P. mirabilis*, and *N. gonorrhea*; and gram-positive streptococci, *D. pneumoniae*, and non-beta-lactamase producing staphylococci. Consequently it is used to treat infections of the upper respiratory tract (including ear, nose, and throat), lower respiratory tract, skin and soft tissues, and genitourinary tract infections. This broad range of activities combined with its almost complete absorption from the gastrointestinal tract (with or without food), accompanied by minimal intestinal irritation, probably contributes to its popularity among family physicians.

The major adverse reactions of Amoxil are nausea, vomiting and diarrhea. Less frequent side effects involve the haemopoietic and lymphatic systems and include anemia, thrombocytopenia, thrombocytopenic purpura, eosinophilia, leukopenia, neutropenia, and agranulocytosis. These are thought to be due to hypersensitivity reactions which are reversible upon discontinuation of the drug. The contraindications to prescribing are similar to those associated with the other penicillins and also cephalosporins. Amoxil should not be prescribed for patients with known allergic reactions to these drugs.

Amoxil therapy may be continued in the presence of the previously described drugs commonly used or prescribed by dentists. The rare side effects of Amoxil

TABLE IV

Drugs most frequently prescribed by U.S. dentists in 1989

1. Penicillin VK
2. Tetracycline
3. Tylenol + Codine
4. V-Cillin K
5. Erythromycin
6. Luride
7. Pen Vee K
8. Phos-Flur
9. Motrin
10. Prevident VK

Source: Dental Products Report 23(6) 1, 1989.

such as thrombocytopenia and agranulocytosis may present with oral signs or symptoms which would preclude invasive dental procedures.

Ampicillin: Is a broad spectrum, non-beta-lactamase resistant antibiotic. It is effective against susceptible strains of gram-negative shigellae, *S. typhosa*, salmonellae, *E. coli*, *H. influenza*; and gram-positive streptococci, pneumococci, and non-beta-lactamase producing staphylococci. It is useful in the treatment of E.N.T. and respiratory tract infections, genitourinary and gastrointestinal infections, and bacterial meningitis. Unlike Amoxil, food retards the absorption of Ampicillin.

The major contraindications and adverse side effects are similar to Amoxil. However, ampicillin is more frequently associated with stomatitis and glossitis such as black hairy tongue; and hypersensitivity reactions such as erythematous maculopopular rashes and erythema multiforme which may present oral manifestations.

It is unlikely that ampicillin will adversely react with the drugs usually used in dentistry. Indeed, it is prescribed by dentists as part of the prophylactic regimen in cardiac cases where patients are at high risk of infective endocarditis or who have prosthetic heart valves and who are not allergic to penicillin. It must also be remembered that ampicillin given to patients taking estrogen/progestin type oral contraceptives may promote intermittent vaginal bleeding and unwanted pregnancy.²

Tetracycline: Is a broad spectrum bacteriostatic antibiotic which is effective against a wide range of gram-negative

and gram-positive organisms. Unfortunately many bacteria are resistant to tetracycline, including certain strains of streptococci, staphylococci, pneumococci, gonococci, and some gram-negative organisms. Consequently tetracyclines should not be prescribed unless culture and sensitivity tests have been performed or, at least, initiated. Tetracycline is used in the treatment of gastrointestinal and genitourinary infections caused by susceptible organisms. Foods and stomach acids retard its absorption and therefore it should be taken one hour before or two hours after meals.

Tetracycline is associated with a wider spectrum of adverse effects than either Amoxil or ampicillin. Included are: gastrointestinal disturbances such as nausea, vomiting, diarrhea and anorexia; dermatologic rashes with photosensitivity; central nervous system disorders such as lightheadedness, fainting and headaches; and hypersensitivity reactions ranging from angioneurotic edema to anaphylactic purpura. The prescription of tetracycline to pregnant females or to the post-partum infant has resulted in yellowish or brownish-gray discoloration of dentine and enamel. Other oral manifestations include, stomatitis, glossitis, black hairy tongue and sore throat. The major contraindications include hypersensitivity to any of the tetracycline class of antibiotics, severe liver or kidney disease, and pregnant or lactating women unless the potential benefit outweighs the risk to the fetus or child.

Tetracycline is unlikely to react with drugs commonly used in dental practice. It should not be prescribed in conjunction with penicillin as it reduces that drug's bacteriocidal properties. It is not recommended as a prophylactic antibiotic. If tetracycline is prescribed in dental practice it should be remembered that, in the presence of anticoagulants, it increases the prothrombin time. Its absorption is delayed by antacids, iron supplements, sodium bicarbonate, and magnesium-containing laxatives. For similar reasons as with ampicillin, tetracycline should not be prescribed if patients are taking estrogen/progestin oral contraceptives.²

Penicillin V – Generic name, phenoxymethyl penicillin: Is a non-beta-lactamase antibiotic which is therefore not effective against beta-lactamase (penicillinase) producing bacteria including many strains of staphylococci. It is useful in the treatment of mild to moderately severe infections due to penicillin V sensitive organisms of the respiratory tract (including beta-streptococcal infections), skin and soft tissues; and in the treatment of

gonorrhea and syphilis. Penicillin V is used frequently as a prophylactic antibiotic, either following rheumatic fever or to prevent bacterial endocarditis, and in this regard, is significant in dental treatment. It may be taken at mealtimes, but is most effective on an empty stomach.

The major contraindication to the use of penicillin V is a history of previous allergy to penicillins or cephalosporins. The common side effects are similar to those described for the previously discussed antibiotics. Severe reactions such as anaphylaxis and thrombocytopenia are usually associated with the parenteral rather than the oral route of administration, thus are uncommon when it is administered orally. Black hairy tongue is not an uncommon oral manifestation of long-term penicillin V use.

Penicillin V is unlikely to cross-react with the drugs used in dentistry and it is frequently used as a prophylactic antibiotic. Although it is the antimicrobial of choice for oral/dental infections, the oral route of administration may not – in severe infections – be effective, as patients may not absorb therapeutic amounts. It is important to appreciate that the bacteriocidal properties of penicillin V are reduced in the presence of such drugs as chloramphenicol, erythromycin, sulfonamides, salicylates and tetracycline. Penicillin V should – for the previously stated reasons – not be given concurrently with estrogen/progestin oral contraceptives.

Erythromycin: Is a bacteriostatic antibiotic with a spectrum of activity similar to penicillin V. It is available as an enteric-coated tablet or insoluble ester to prevent degradation by stomach acid. It should be taken two hours before or several hours after meals. Erythromycin is used in the treatment of infections of the respiratory tract, skin and soft tissues due to group A beta-hemolytic streptococci, *S. aureus*, *S. pneumoniae* and *M. pneumoniae*. It is an alternative drug of choice for gonorrhea and primary syphilis in patients allergic to penicillin; similarly it is used prophylactically against bacterial endocarditis when allergy to penicillins exist, which is a major reason for its prescription in dental practice. Serious allergic reactions induced by erythromycin are rare, the most common being gastrointestinal disturbances such as nausea, vomiting and diarrhea.

Therapeutic oral doses of erythromycin should continue for 10 days, and may interfere with the antibacterial activity of concomitantly prescribed drugs such as penicillin, lincomycin, and chloromycetin.

Cloxacillin: Is a bacteriocidal antibiotic. It is particularly effective against penicillin G resistant (beta-lactamase producing) staphylococci, or for infections caused by beta-hemolytic streptococci and pneumococci. However, it does have less intrinsic anti-bacterial activity and a narrower spectrum of effectiveness than penicillin G. Foods not only retard the absorption but they also increase the likelihood of inactivation of cloxacillin by stomach acid.

The major contraindications for its use are in individuals with a history of hypersensitivity to the penicillins and cephalosporins, or who have asthma, hay fever or allergic urticaria. Candida type infections may occur as secondary infections when cloxacillin is prescribed to debilitated, malnourished, or immunosuppressed patients.

Cloxacillin is not known to react with drugs commonly prescribed in dental practice. While it appears to be safe, its use in dentistry may be confined to severe staphylococcal infections of oral and adjacent tissues.

Summary

An analysis of **Tables I and II** reveals that the 20 drugs most frequently prescribed by family practitioners may be classified into 10 therapeutic categories. The antibiotics constitute the numerically largest group. The medical use, adverse reactions, and dental significance of these antibiotics have been described. The remaining drugs will be discussed using a similar format in subsequent papers. Δ

Dr. Hardie is Chief, Department of Dentistry, Ottawa Civic Hospital, 1053 Carling Avenue, Ottawa, Ont. K1Y 4E9.

Reprint requests to Dr. Hardie.

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ACTIONS:

Acetaminophen is an analgesic and antipyretic.

INDICATIONS:

TYLENOL* acetaminophen is indicated for the relief of pain and fever. Also as an analgesic/antipyretic in the symptomatic treatment of colds.

CONTRAINDICATIONS:

Hypersensitivity to acetaminophen

ADVERSE EFFECTS:

In contrast to salicylates, gastrointestinal irritation rarely occurs with acetaminophen. If a rare hypersensitivity reaction occurs, discontinue the drug. Hypersensitivity is manifested by rash or urticaria. Regular use of acetaminophen has shown to produce a slight increase in prothrombin time in patients receiving oral anticoagulants, but the clinical significance of this effect is not clear.

PRECAUTIONS AND TREATMENT OF OVERDOSE:

The majority of patients who have ingested an overdose large enough to cause hepatic toxicity have early symptoms. However, since there are exceptions, in cases of suspected acetaminophen overdose, begin specific antidotal therapy as soon as possible. Maintain supportive treatment throughout management of overdose as indicated by the results of acetaminophen plasma levels, liver function tests and other clinical laboratory tests. N-acetylcysteine as an antidote for acetaminophen overdose is recommended and is available in oral and parenteral dosage forms. More detailed information on the treatment of acetaminophen overdose with N-acetylcysteine is available from the manufacturers of its oral and parenteral dosage forms, or contact your nearest Poison Control/Information Centre

DOSAGE:

Adults:

650 to 1000 mg every 4 to 6 hours, not to exceed 4000 mg in 24 hours.

Children:

Based on Weight

10-15 mg/kg every 4 to 6 hours, not to exceed 65 mg/kg in 24 hours.

SUPPLIED:

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‡ Sweetened with sodium cyclamate and sorbitol.

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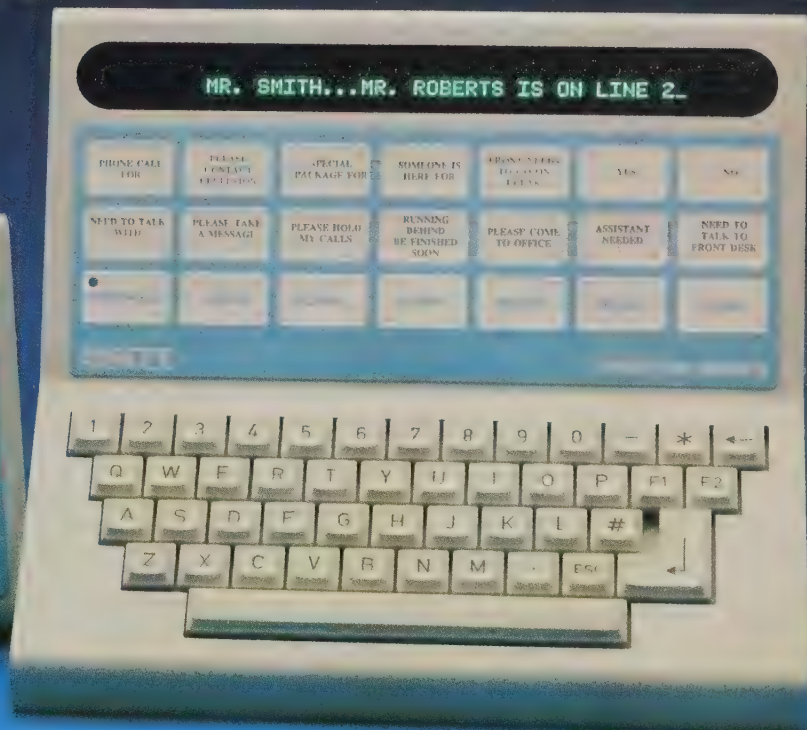
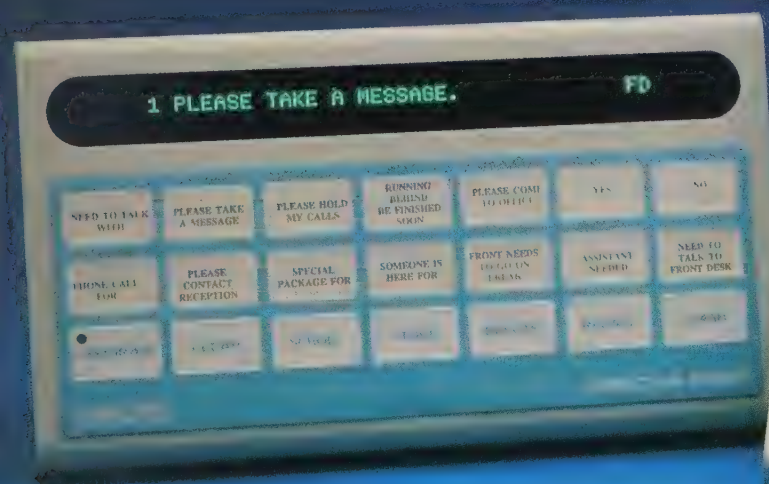
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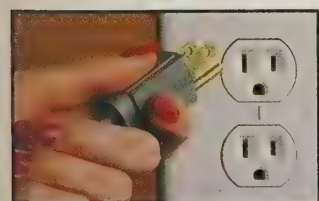


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ibuprofen tablets USP
200 mg Tablets/Caplets
Analgesic/Antipyretic

Advil® should not be used during pregnancy, in nursing mothers or in pediatric patients because its safety under these conditions has not been established.

Aseptic meningitis, fever, or rash has been reported in connection with ibuprofen therapy in patients with systemic lupus erythematosus. Advil® should not be used by patients with systemic lupus erythematosus except under a physician's supervision. Advil® should not be taken by patients with active peptic ulcer disease or gastrointestinal bleeding unless directed by a physician.

WARNINGS Anaphylactoid reactions have occurred in patients with known ASA hypersensitivity (see Contraindications).

Peptic ulcerations and gastrointestinal bleeding, sometimes severe, have been reported in patients receiving prescription doses of ibuprofen. Peptic ulcerations, perforation, or severe gastrointestinal bleeding can have a fatal outcome, and although few such reports have been received with ibuprofen, a cause and effect relationship has not been established. Patients with a history of upper gastrointestinal tract disease should take Advil® under the supervision of a physician.

Like other nonsteroidal anti-inflammatory agents, ibuprofen can inhibit platelet aggregation. However, compared to ASA, the effect is quantitatively less, of shorter duration, and reversible upon discontinuation of ibuprofen. Bleeding time has also been prolonged by ibuprofen though within the normal range in normal subjects. Because this effect on bleeding time may be exaggerated in patients with underlying hemostatic defects, Advil® should be avoided by persons with intrinsic coagulation defects and those on anticoagulant therapy.

PRECAUTIONS Conditions associated with dehydration appear to increase the risk of renal toxicity. Advil should therefore be used with caution in patients with chronic renal failure, congestive heart failure or hypertension being treated chronically with diuretics. Caution should be observed in elderly patients who have diminished renal function.

Patients on Advil® should be cautioned to report to their physician if any signs or symptoms of gastrointestinal ulceration or bleeding, blurred vision or other eye symptoms, skin rash, weight gain, edema, tinnitus, dizziness or respiratory difficulties.

If ibuprofen is taken in conjunction with prolonged corticosteroid therapy and it is decided to discontinue the latter therapy, as under other circumstances, the corticosteroid dosage should be tapered off slowly to avoid exacerbation of disease or adrenal insufficiency.

DRUG INTERACTIONS

Coumarin-type anticoagulants: Several short-term controlled studies failed to show that ibuprofen significantly affected prothrombin time or a variety of other clotting factors when administered to individuals on coumarin-type anticoagulants. The physician should be cautious when administering Advil® to patients on anticoagulants. **ASA:** Animal studies show that ASA given with nonsteroidal anti-inflammatory agents including ibuprofen yields a net decrease in anti-inflammatory activity with lowered blood levels of the non-ASA drug. Single dose bioavailability studies in normal volunteers have failed to show an effect of ASA on ibuprofen blood levels. Correlative clinical studies have not been conducted. **Other Anti-inflammatory Agents (NSAIDs):** The addition of ADVIL® to a pre-existent prescribed NSAID regimen in patients with a condition such as rheumatoid arthritis may result in increased risk of adverse effects. **Diuretics:** Because of its fluid retention properties, high doses of ibuprofen can decrease the diuretic and antihypertensive effects of diuretics, and increased diuretic dosage may be required. Patients with impaired renal function who are taking potassium-sparing diuretics should not take ibuprofen. **Acetaminophen:** Although interactions have not been reported, concurrent use with ADVIL® is not advisable. **Other Drugs:** Although ibuprofen binds extensively to plasma proteins, interactions with other protein-bound drugs occur rarely. Nevertheless, caution should be observed when other drugs, also having a high affinity for protein binding sites, are used concurrently. Some observations have suggested a potential for ibuprofen to interact with furosemide, pindolol, digoxin, phenytoin and lithium salts. However, the mechanisms and clinical significance of these observations are presently not known. No interactions have been reported when ibuprofen has been used in conjunction with hypoglycemics, probenecid, digitalis, thyroxine, steroids, antibiotics or benzodiazepines.

ADVERSE REACTIONS The following adverse reactions have been noted in patients treated with prescription regimens of ibuprofen: **Note:** Reactions listed below under Causal Relationship Unknown are those which occurred under circumstances where a causal relationship could not be established. However, in these rarely reported events, the possibility of a relationship to ibuprofen cannot be excluded.

Gastrointestinal: The adverse reactions most frequently seen with prescribed ibuprofen therapy involve the gastrointestinal system. Incidence 3 to 9%: nausea, epigastric pain, heartburn. Incidence 1 to 3%: diarrhea, abdominal distress, nausea and vomiting, indigestion, constipation, abdominal cramps or pain, fullness of the gastrointestinal tract (bloating or flatulence). Incidence less than 1%: gastric or duodenal ulcer with bleeding and/or perforation, gastrointestinal hemorrhage, melena, hepatitis, jaundice, abnormal liver function (SGOT, serum bilirubin and alkaline phosphatase). **Central Nervous System:** Incidence 3 to 9%: dizziness. Incidence 1 to 3%: headache, nervousness. Incidence less than 1%: depression, insomnia. Causal relationship unknown: paresthesias, hallucinations, dream abnormalities. Aseptic meningitis and meningoencephalitis, in one case accompanied by eosinophilia in the cerebrospinal fluid, have been reported in patients who took ibuprofen intermittently and did not have any connective tissue disease. **Dermatologic:** Incidence 3 to 9%: rash (including maculopapular type). Incidence 1 to 3%: pruritus. Incidence less than 1%: vesiculobullous eruptions, urticaria, erythema multiforme. Causal relationship unknown: alopecia, Stevens-Johnson syndrome. **Special Senses:** Incidence 1 to 3%: tinnitus. Incidence less than 1%: amblyopia (blurred and/or diminished vision, scotomata and/or changes in colour vision). Any patient with eye complaints during ibuprofen therapy should have an ophthalmological examination. Causal relationship unknown: conjunctivitis, diplopia, optic neuritis. **Metabolic:** Incidence 1 to 3%: decreased appetite, edema, fluid retention. Fluid retention generally responds promptly to drug discontinuation (see Precautions). **Hematologic:** Incidence less than 1%: leukopenia and decreases in hemoglobin and hematocrit. Causal relationship unknown: hemolytic anemia, thrombocytopenia, granulocytopenia, bleeding episodes (e.g., purpura, epistaxis, hematuria, menorrhagia). **Cardiovascular:** Incidence less than 1%: congestive heart failure in patients with marginal cardiac function, elevated blood pressure. Causal relationship unknown: arrhythmias (sinus tachycardia, sinus bradycardia, palpitations). **Allergic:** Incidence less than 1%: anaphylaxis (see Contraindications). Causal relationship unknown: fever, serum sickness, lupus erythematosus. **Endocrine:** Causal relationship unknown: gynecomastia, hypoglycemic reaction. Menstrual delays of up to two weeks and dysfunctional uterine bleeding occurred in nine patients taking ibuprofen, 400 mg t.i.d., for three days before menses. **Renal:** Causal relationship unknown: decreased creatinine clearance, polyuria, azotemia. Like other non-steroidal anti-inflammatory drugs, ibuprofen inhibits renal prostaglandin synthesis, which may decrease renal function and cause sodium retention. Renal blood flow and glomerular filtration rate decreased in patients with mild impairment of renal function who took 1200 mg/day of ibuprofen for one week. Renal papillary necrosis has been reported. A number of factors appear to increase the risk of renal toxicity (see Precautions). In comparative clinical trials analyzed by The Boots Company involving 7624 ibuprofen-treated, 2822 ASA-treated and 2843 placebo-treated patients, adverse reactions involving renal function were reported by 0.6% of the ibuprofen group, 0.3% of the ASA group and 0.1% of the placebo group. The analysis included data from trials which employed doses greater than 1200 mg, used for longer periods than OTC recommendations and by patients being treated for serious conditions.

SYMPTOMS AND TREATMENT OF OVERDOSAGE The following cases of overdosage have been reported. A 19-month-old (12 kg) child, presented with apnea, cyanosis and responsiveness only to painful stimuli 1.5 hours after the ingestion of 7-10 400 mg tablets of ibuprofen. After treatment with oxygen, sodium bicarbonate, dextrose and normal saline infusion, the child was responsive and 12 hours after ingestion appeared completely recovered. Blood levels of ibuprofen reached 102.9 ug/mL 8.5 hours after the accident.

Two other children, each weighing approximately 10 kg, had taken an estimated 120 mg/kg. There were no signs of acute intoxication or late sequelae. In one child the ibuprofen blood level at 90 minutes after ingestion was 700 ug/mL.

A 19-year-old male who had taken 8000 mg of ibuprofen over a period of a few hours complained of dizziness, and nystagmus was observed. After hospitalization, hydration and 3 days of bed rest, he recovered without sequelae.

In cases of acute overdosage, the stomach should be emptied by vomiting or lavage, though little drug will likely be recovered if more than one hour has elapsed since ingestion. Because the drug is acidic and is excreted in the urine, it is theoretically beneficial to administer alkali and induce diuresis.

Dosage and Administration Adults and Children over 12: Take 1 or 2 tablets every four hours as needed. Do not exceed six tablets in 24 hours, unless directed by a physician.

Availability Each brown, sugar-coated Advil® tablet/caplet contains 200 mg of ibuprofen. Advil® tablets are available in bottles of 24, 50 and 100 tablets or caplets and pouches of 2 tablets.

Store at room temperature. Product monograph available to physicians and pharmacists upon request.

References: 1) Schachtel BP, Fillingim JM, Thoden WR, et al.: Sore throat pain in the evaluation of mild analgesics. Clin Pharmacol Ther 1988; 44:704-11. 2) Lanza FL, Royer G, Nelson R: An Endoscopic Evaluation of the Effects of Non-steroidal Anti-inflammatory Drugs on the Gastric Mucosa. Gastrointest Endosc 1975; 21:103-105.

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For further information, contact:

Dr. K. Titley
Department of Paediatric Dentistry
University of Toronto
Faculty of Dentistry
124 Edward Street
Toronto, Ont.
M5G 1G6

CLINICAL DENTAL OFFICER

We have a challenging opportunity for a dentist who is interested in the area of public health. The successful candidate will be one of the three clinical Dental Officers responsible for the delivery of the dental treatment program within the city.

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The successful applicant should also possess demonstrated strong administrative skills. Administrative functions will include preparing and submitting dental statistical reports and maintaining patient records. She/he will also be responsible for the supervision of the dental assistant.

QUALIFICATIONS: Graduate in dentistry from a recognized university and current registration with the Alberta Dental Association. Public Health experience will be considered a definite asset.

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Please forward resumé and letter of application to Ms. L. Palladino, Personnel Services, Suite 500, 10216 - 124 Street, Edmonton, AB, T5N 4A3. Resumés will be accepted until a suitable candidate is found.



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Announcements

May/Mai 1990

May: American Society for Geriatric Dentistry

Contact: Dr. Paul Van Ostenberg, 211 E Chicago Ave, Suite 1616, Chicago, IL 60611, USA.

May: American Society of Hospital Dentists Contact: Dr. Paul Van Ostenberg, 211 E Chicago Ave, Suite 1616, Chicago, IL 60611, USA.

May 3-5: ODA Annual Spring Meeting to be held at the Metro Toronto Convention Centre is looking for clinicians. All members of the dental team are invited to participate and share their expertise. For an application form, please contact: Diana Thorneycroft, ODA, 234 St. George St, Toronto, ONT M5R 2P1.

May 4-6: American Dental Society of Anesthesiology in Orlando, FL. Details: Mr. Peter C. Goulding, 211 E Chicago Ave, Suite 948, Chicago, IL 60611, USA.

May 4-6: British Dental Surgery Assistants Jubilee Conference in Solihull. For information, contact: DSA House, 29 London St, Fleetwood FY7 6JY, England. Tel: 039-17-78631.

May 5: Class of 80: 10th Year Reunion, University of Toronto at the Skydome during the ODA Convention. Contact: Tom Harle (416) 849-3571.

May 16-19: International Dental Congress of the British Dental Association at Barbican Centre in London. Contact: British Dental Association, 64 Wimpole St, London W1M 8A1, England or tel 01 935 0875.

May 16-19: 3rd North Sea Conference on Periodontology in Maastricht, The Netherlands sponsored by the British, Dutch and Scandinavian Societies of Periodontology. For more information, contact: Dutch Society of Periodontology, PO Box 24, 9649 ZG Muntendam, The Netherlands.

May 17-19: Congrès de la Société Suisse d'Odontostomatologie SSO in Montreux, Switzerland. Contact: D' Pierre Spahn, 51 av du Casino, CH-1820 Montreux, Switzerland.

May 20-24: Les Journées dentaires du Québec in Montréal. Contact: Chantal Bally, 625 boul René-Lévesque ouest, Montréal, Qué H3J 1Y2.

May 26-29: American Academy of Pediatric Dentistry in Boston. Contact: Dr. John A. Bogert, 211 E Chicago Ave, Suite 1306, Chicago, IL 60611, USA.

May 28-31: The Impact of Lasers on Dental Science in Paris, France. Contact: Lasers 1990 Scientific Secretariat, Faculté de Chirurgie dentaire, 1 rue M. Arnoux, F-92120 Montrouge, France.

June/Juin 1990

June 1-2: TM Joint Sonography Highlights Seminar: A presentation on TM joint sonography, an emerging technology, by Dr. Jack Lynn will be the highlight of a seminar to be held in Orlando, Florida. Call Myo-tronics Continuing Education at (800) 426-0316 or (206) 622-2121 in WA, AK, and Canada.

June 2-4: XI^{èmes} Journées françaises de Parodontologie in Cannes, France. Contact: Dr. Catherine Mattout, 21 rue Sylvabelle, 13006 Marseille, France.

June 6-13: American Dental Hygienists Association in San Antonio, TX. Contact: Ms. Kathy Gallagher, 444 N Michigan Ave, Suite 3400, Alexandria, VA 22305, USA.

June 10-13: Alberta Dental Association Convention in Kananaskis. "Start the 90's with a Kananaskis High". For registration, contact: Dr. R.T. Huff, 131 Woodvalley Dr SW, Calgary, ALTA T2W 5Y2.

June 11-14: Karlstad, Sweden: 2nd International Conference on Preventive Dentistry and Epidemiology: Mrs. Ann Johnson, Landslingsulveckling AB, Ostra Torggatan 19, Sweden.

June 14-15: Fundamentals of Orofacial Myology with Marvin L. Hanson in Ottawa. Contact: Barbara Okun, Dept of Speech and Language Disorders, Ottawa Civic Hospital, 1053 Carling Ave, Ottawa, Ont K1Y 4E9. Tel: (613) 761-4722.

June 14-16: 9th Symposium on Sports Dentistry at the Cleveland Clinic. For information, contact: Dr. Ed Whitman, 3609 Par E, #201N, Cleveland, OH 44122. Phone (216) 831-2991.

June 18-24: National Association of Dental Laboratories in San Diego. Contact: Ms. Audrey Calomino, 3801 Mt Vernon Ave, Alexandria, VA 22305, USA.

June 19-22: 96th Annual Meeting of the American Dental Society of Europe in St. Andrews, Scotland. Contact: Dr. Clive Debenham, American Dental Society of Europe, 1 Harley St, London W1N 1DA, England.

June 22-25: Eighteenth Annual Convention of the International Association of Orofacial Myology. Management of Oral Myofunctional Disorders. Minneapolis, Minnesota. Contact: Gayle Snyder (408) 997-2432.

June 25-29: 81st Annual Conference of the Canadian Public Health Association in Toronto. Contact: CPHA, 1565 Carling Ave, Suite 400, Ottawa, Ont K1Z 8R1. Tel: (613) 725-3769.

June 27-July 1: Dental Manufacturers of American, Inc. Contact: Ms. Kathleen A. LeMar, 1118 Land Title Bldg, Philadelphia, PA 19110, USA.

June 28-30: Steri-Oss Schedules Workshop in Hawaii: A three-day "Steri-Oss" Education/Vacation that will take the practitioner through each step of dental implant treatment at the Hyatt Regency Hotel on Maui. Registration information is available by calling Steri-Oss, an affiliate of Denar Corp., at 800-854-931 or 714/776-9000, ext. 308.

June 28-30: Florida National Dental Congress. For more information, contact: Betty Waggener, Director, Florida National Dental Congress, 3021 Swann Ave, Tampa, FL 33609. Tel: (813) 877-7597.

June 28-30: Sri Lanka Dental Association International Congress at the Hotel Hilton in Colombo, Sri Lanka. For information, contact: Secretary, Organizing Committee, Sri Lanka Dental Association, Professional Centre, 275/75 Bauddhaloka Mawatha, Colombo 07, Sri Lanka.

June 28-30: 5th Annual Society for Oral Oncology Conference in Orlando, Florida. For more information, contact: Dr. Ronald A. Baughman, Chairman, Dept of Oral Medicine, Univ of Florida College of Dentistry, Box J 414, Gainesville, FL 32610. (904) 392-2508.

June 30-July 7: Bermuda Dental Association Convention For travel and registration information, contact: Dr. Bob Brandon, 85 Lonsdale Dr, London, ONT N6G 1T4 (519) 657-3368.

July/Juillet 1990

July 2-5: 5th Biennial Congress of the International Association of Oral Pathologists in Tokyo, Japan. Contact: Dr. Tetsuo Ishiki, Niigata University, 2 Gakko-Cho, Niigata #951, Japan.

July 6-7: Special Care in Dentistry: in London International College of Dentists, Federation of Special Care in Dentistry (USA) in London. Contact: Dr. B.D. Glynn, 35 Devonshire PL, London, W1N 1PE, England.

July 11-14: 37th Annual Congress of the European Organization for Caries Research in Ljubljana, Yugoslavia. For details, contact: Dr. V. Vrbic, University klinicy Ctr. Ljubljana, Mrvatski TRG 6, Y-61000, Ljubljana, Yugoslavia.

July 13-19: Academy of General Dentistry Contact: Ms. Debbie Jepsen, 211 E Chicago Ave, Suite 1200, Chicago, IL 60611, USA.

August/Août 1990

August: Annual Congress of International Association of Dental Students in Puerto Rico. Contact: The Secretary, International Association of Dental Students, c/o Fédération dentaire internationale, 64 Wimpole St, London, W1M 8AL, England.

August 24-28: Canadian Dental Association, Annual Convention: Quebec City, Quebec, Canada. (English and French). Please Contact: Dr. Michel Jahjah, General Chairman, CDA Conventions, 1815 Alta Vista Drive, Ottawa, Ontario K1G 3Y6 (613) 523-1770 FAX: (613) 523-7736.

August 24-28: 15th Biennial Conference of the New Zealand Dental Association in Dunedin, New Zealand. For information, contact: Conference Secretary, PO Box 647, Dunedin, New Zealand.

August 25: International College of Dentists, Canadian Section — Annual Meeting Convocation: The Chateau Laurier Hotel, Ottawa, Ontario. Editor, N. Murnoe, 203-333 Bayview Ave., Willowdale, Ont. M2K 1G4.

August 25-28: Congress of the Association of Dental Education in Europe in Budapest, Hungary. For details, contact: Prof. Jolan Banoczy, Mikszath K ter 5, H-1088 Budapest, Hungary.

August 25-29: Canadian Dental Association, Annual Convention: Ottawa, Ontario, Canada (English and French). Contact: Dr. Michel Jahjah, General Chairman, CDA Conventions, 1815 Alta Vista Drive, Ottawa, Ontario K1G 3Y6. (613) 523-1770 FAX: (613) 523-7736.

September/Septembre 1990

September: Annual Conference of the European Prosthodontic Association/Dutch Society of Prosthetic Dentistry in the Netherlands. Contact: Prof H. de Koomen, ACTA, Postbus 7161, 1007 MC Amsterdam, The Netherlands.

September 2-6: 10th Congress of the International Association of Dentistry for the Handicapped in Nice. Contact: Prof J.R. Jasmin, Université de Nice, UFR Odontologie, Faculté de Chirurgie dentaire, av Joseph Vallot, Parc Valrose, 06034 Nice, France.

September 5-7: 7th Biennial Congress of the International Academy of Gnathology (Asian Section) in Singapore. Contact: The Secretariat, IAG-7th Annual Congress, Communication International Assoc Pte Ltd, 450 Alexandra Rd, #10-00 Inchange House, Singapore 0511

September 6-7: Federation of Prosthodontic Organizations Contact: Mr. Peter C. Goulding, 211 E Chicago Ave, Suite 948, Chicago, IL 60611, USA.

September 8-14: 78th Annual World Dental Congress in Singapore. Contact: Fédération dentaire internationale, 64 Wimpole St, London W1M 8AL, England.

September 10-14: 10th Congress of the European Association for Cranio-Maxillo-facial Surgery in Brussels. Contact: Mrs. H. van Leemputten, rue Joseph Stallaert 28, B-1180 Brussels, Belgium.

September 12-15: dentchnica 90 and the 10th International Congress of Dental Technicians in Cologne, Germany. For information, write: Verband Deutscher Zahntechniker-Innugen, Ilkenhansstraße 6, D-6000 Frankfurt 50, West Germany.

September 13-16: American Academy of Orthodontics for the General Practitioner in Stevens Point, WI. Contact: Ms. Janes Taylor, 3953 N 76th, Milwaukee, WI 53222, USA.

September 16-20: New Zealand Association of Orthodontists, Queenstown, New Zealand: Dr. P.G. Gilbert, P.O. Box 5217, Dunedin, New Zealand.

September 17-20: 4th Meeting of International Academy of Periodontology in Istanbul. Contact: Mr. M. Midda, University of Bristol, Dental School and Hospital, Lower Maudlin St, Bristol BS1 2LY, England.

September 27-29: 41st Annual New Orleans Dental Conference Contact: Ms. Norma Ward, New Orleans Dental Conference, Suite 119, 3101 W Napoleon Ave, Metairie, LA 70001, USA.

September 27-30: 108th Annual Session of the American Dental Trade Association in Hilton Head, South Carolina. Contact: Mr. Nikolaj Petrovic, American Dental Trade Association, 4222 King St, Alexandria, VA 22302, USA.

October/Octobre 1990

October 1-5: Annual Conference of the Canadian Society of Forensic Science in Ottawa. Deadline for scientific papers is June 1/90. For further information, please contact: Canadian Society of Forensic Science, Suite 215, 2660 Southvale Cres, Ottawa, Ont K1B 4W5. Tel: (613) 731-2096.

October 7-8: American Board of Oral & Maxillofacial Radiology 1990 Certifying Examination in Boston, MA. Applications must be submitted by March 1, 1990. For further information or application forms, please contact: Dr. Axel Ruprecht, University of Iowa, College of Dentistry, DSB S-356, Iowa City, IA 52242-0101.

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ZOVIRAX OINTMENT 5% (4 g and 15 g tubes)

INDICATIONS AND CLINICAL USE: ZOVIRAX Ointment 5% is indicated for the management of initial episodes of genital herpes simplex infections. It is also indicated in the management of nonlife-threatening cutaneous herpes simplex virus infections in immunocompromised patients. The prophylactic use of this preparation has not been established.

In genital herpes, appropriate examinations should be performed to rule out other sexually transmitted diseases.

These indications are based on the results of a number of double-blind, placebo-controlled studies which examined changes in virus excretion, healing of lesions and relief of pain. Because of the wide biological variations inherent in herpes simplex infections, the following summary is presented merely to illustrate the spectrum of responses observed to date. As in the treatment of any infectious disease, the best response may be expected when therapy is begun at the earliest possible moment.

In immunocompromised patients, 93% were virus negative after 5 days of topical ZOVIRAX therapy whereas only 35% of placebo recipients were virus negative at the same time.

In patients with herpes labialis, there was a significantly greater decrease in the amount of virus excreted after one day of therapy in those receiving ZOVIRAX within 8 hours of the onset of cold sores when compared to identically treated placebo patients.

Because complete re-epithelialization of herpes-disrupted integument necessitates recruitment of several complex repair mechanisms, the physician should be aware that the disappearance of visible lesions is somewhat variable and will occur later than the cessation of virus shedding. All immunocompromised patients who received topical ZOVIRAX had healed their lesions 23 days after the initiation of a 10-day course of therapy. 75% of placebo patients had healed lesions at that point. Some placebo patients continued to have visible lesions for more than 30 days.

Pain associated with herpes infections is highly variable in frequency and intensity. One hundred percent of the ZOVIRAX-treated immunocompromised patients were pain-free by day 23 versus 70% of placebo-treated patients.

Whereas cutaneous lesions associated with herpes simplex infections are often pathognomonic, Tzanck smears prepared from lesion exudate or scrapings may assist in the diagnosis. Positive cultures for herpes simplex virus offer the only absolute means for confirmation of the diagnosis.

CONTRAINDICATIONS: ZOVIRAX Ointment 5% is contraindicated for patients who develop hypersensitivity or chemical intolerance to any of the components of the formulation, such as polyethylene-glycol.

WARNINGS: ZOVIRAX Ointment 5% is intended for topical use only and should not be used in the eye or on mucous membranes.

PRECAUTIONS: The recommended dosage, frequency of application and duration of treatment of ZOVIRAX Ointment 5% should not be exceeded.

It is not known whether acyclovir is excreted in human milk.

Because many drugs are excreted in human milk, caution should be exercised when ZOVIRAX is administered to a nursing mother.

ZOVIRAX Ointment 5% should be used during pregnancy only if the physician feels the benefit will outweigh the possible harm to the fetus.

Safety of use of ZOVIRAX Ointment 5% in children has not been established.

There exist no data, at this time, which demonstrate that the use of ZOVIRAX Ointment 5% will prevent transmission of infection to other persons.

Since most cutaneous herpes simplex virus infections result from reactivation of latent virus, it is unlikely that ZOVIRAX Ointment 5% will prevent recurrence of infections when applied in the absence of signs and symptoms. ZOVIRAX Ointment 5% should not be applied in an attempt to prevent recurrences; application should commence only at the earliest prodromal sign of disease onset.

Although clinically significant viral resistance associated with the use of ZOVIRAX Ointment 5% has not been observed, this possibility exists.

ADVERSE REACTIONS: Because ulcerated genital lesions are characteristically tender and sensitive to any contact or manipulation, patients may experience discomfort upon application of ointment. In the controlled clinical trials, mild pain (including transient burning and stinging) was reported by 103 (28.3%) of 364 patients treated with ZOVIRAX Ointment 5% and by 115 (31.1%) of 370 patients treated with placebo; treatment was discontinued in 2 of these patients. Other local reactions among acyclovir-treated patients included pruritus in 15 (4.1%), rash in 1 (0.3%) and vulvitis in 1 (0.3%). Among the placebo-treated patients, pruritus was reported by 17 (4.6%) and rash by 1 (0.3%).

In all studies, there was no significant difference between the drug and placebo group in the rate or type of reported adverse reactions.

SYMPTOMS AND TREATMENT OF OVERDOSAGE: Overdosage by topical application of ZOVIRAX Ointment 5% is unlikely because of limited transcutaneous absorption.

DOSAGE AND ADMINISTRATION: Apply ZOVIRAX Ointment 5% liberally to the affected area 4 to 6 times daily for up to 10 days. A sufficient quantity of ointment should be applied to adequately cover all lesions. A finger cot or rubber glove should be used while applying ZOVIRAX in order to prevent

- (1) autoinoculation of other body sites or
- (2) transmission of infection to other persons.

Therapy should be initiated as early as possible following onset of signs and symptoms.

AVAILABILITY: ZOVIRAX Ointment 5% is available in tubes of 4 g and 15 g. Each gram contains 50 mg acyclovir in a polyethylene-glycol base. ZOVIRAX Ointment 5% is for topical administration.

Product Monograph available on request.

Reference:

1. Whitley RJ, Levin M, Barton N, et al. Infections caused by herpes simplex virus in the immunocompromised host: Natural history and topical acyclovir therapy. *J Infect Dis* 1984;150:323-329.

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BRITISH COLUMBIA—Duncan: One of the four fastest growing areas of BC. 4th plumbed with G.E. Panelips. Large waiting room, consult room. Six years on computer. N₂O₂. Downtown location 40 minutes from Victoria. Call (604) 748-3687 weekdays, evenings.

BRITISH COLUMBIA—Central Interior: 10-year-old general practice for sale. Office is 5 years old. 1500 sq ft, 4 operatories, room for 5th. Full-time hygienist. High gross on 35 hr work week. Suitable for experienced dentist or two new graduates. Please reply to CDA Box 2472.

BRITISH COLUMBIA—Coquitlam: For sale. 15-year-old, busy, family practice in developing suburban area. Easy access to Vancouver (25 minutes drive). High gross, low overhead. Providing all phases of dentistry. 3 fully-equipped operatories. 725 sq. ft. in bright, centrally air conditioned office. Large, separate store room. Independent evaluation available. Phone: Bus.: (604) 936-8114 or Res.: (604) 464-5134.

BRITISH COLUMBIA—Nelson: Well-established solo family practice, heavy patient load with excellent growth potential. Associateship leading to partnership required for this busy practice in the West Kootenays. Please contact Jean; (604) 352-6693, days or write: Dr. M. Culham, 108 Baker Street, Nelson, B.C. V1L 4H2.

BRITISH COLUMBIA—Pender Harbour: FOR SALE. Busy part-time general practice for sale on beautiful Sunshine Coast. Two hours travel time from Vancouver. Strong recall/maintenance program and good new patient growth. Ideal for new grad or for a working retirement. Call after 7 pm. Dr. Dan Kingsbury at (604) 886-4535.

BRITISH COLUMBIA—South Surrey: 25 year active-quality family practice. Attractive office. Shares common spaces with 4 other dentists. In the fastest-growing suburb of Vancouver. This is an excellent opportunity. B.A. Matthews (604) 291-2971.

BRITISH COLUMBIA—North Vancouver: Excellent starter practice. Tastefully decorated 4 operator office with N₂O (Nitrous Oxide). Prime location in

North Vancouver B.C. Please inquire P.O. Box 86701, North Vancouver, BC V7L 4L2.

BRITISH COLUMBIA—Vancouver: FOR SALE — Old established general practice. Located in centre of City. 3 ops with principal dentist and one full-time associate. Well-organized office with experienced staff. Call (604) 876-2820.

BRITISH COLUMBIA—Vancouver: Enjoy the great West Coast lifestyle! Very busy, growing family practice for sale. High gross, 28 hour work week, shared office for great net. 3 modern, equipped operatories, with ceiling tv's, Exan computer system for 5 years. Not inexpensive, but worth it! Serious calls only please. (604) 494-4303.

BRITISH COLUMBIA—Vancouver: Well-established practice for sale, professional building, city and mountain view. Six operatories. Opportunity for experienced practitioner with associate or two graduates to take over well functioning and profitable office. Owner wishes retirement but he and associate can stay on for smooth transition. Call evenings: (604) 922-0657.

BRITISH COLUMBIA—Vancouver Suburb: Practice for sale. Busy, family practice established more than 15 years. Attractive office, recently relocated to new building with good exposure, 3 ops of new equipment. Principal dentist and one associate. Well-organized office, very-experienced staff who completely manage the practice. Phone: (604) 531-7688 (evenings).

BRITISH COLUMBIA—Victoria and Gulf Islands: Something different. 2 days a week in a children's hospital in Victoria. One day on each of two beautiful Gulf Islands. Great life-style, low overhead, interesting work at a reasonable pace. Good gross. Call evenings, (604) 652-4970.

BRITISH COLUMBIA—Victoria: Long-established, low-overhead, two-chair family practice. Centrally located in classic Heritage building. Preventative orientation. Healthy gross. Current owner operates 4 days/week, but work load could be reduced or intensified as good growth potential exists. Modern Space-line equipment. Excellent starter practice in a highly desirable area. Phone evenings, Fridays and weekends (604) 370-2806.

ALBERTA—Edmonton: Practice for Sale. Excellent opportunity for established dentists or new graduates. Modern, 5-operator general practice located in downtown professional building. Owner returning to school. Phone (403) 465-5035 or 467-6887 after 6 pm.

SASKATCHEWAN: Very busy, family-oriented practice for sale or associateship leading to purchase in small Saskatchewan city. Four fully-equipped operatories, including panelipse. Large patient base makes it suitable for 2 new graduates or 1 experienced dentist. Very reasonable selling price. Reply to CDA Box 2420.

SASKATCHEWAN: Practice for sale. Large rural Saskatchewan practice for sale. Buyer to take over lease as purchase price. Excellent opportunity. Please write CDA # 2483.

MANITOBA: Rural practice for sale 45 minutes from Winnipeg. Located in new strip mall. Tel: (204) 339-1738.

ONTARIO—Brockville: For sale. Established practice (22 years). Short- or long-term: Call Roger Bateson (613) 342-6300.

ONTARIO—Kitchener/Cambridge: Long-established, busy, growing practice for sale. 2 ops, modern equipment. Professionally appraised. 85% insurance. Owner moving due to spouse's job transfer. Please call Jane Lukasik (H) (519) 746-5235, or (B) (519) 632-7915. Available Immediately.

ONTARIO—Ottawa: Excellent Ottawa opportunity for special skills. Experienced practioner required to use I.V. sedation for third molar surgery, endodontics, and general restorative dentistry. High clinical and professional standards in long-established group practice in new location with new equipment. Associateship leading to future partnership available. Reply in writing to: Dental Associates, 20-1620 Scott Street, Ottawa, Ontario K1Y 4S7, or call Debbie at (613) 728-3031.

ONTARIO—Stratford: Practice for sale. Full-time preventive practice presents excellent opportunity for experienced dentist or ambitious new graduate. New, well-equipped, four-operator facility in growing community. Friendly experienced staff. Reasonable and flexible terms.

Vendor will assist for smooth transition, if desired. Trial associateship optional. (519) 664-2434.

ONTARIO—Toronto: Modern, fully equipped dental office at 94 Cumberland Street. Exceptional opportunity to establish a downtown practice, reduce overhead, and have a flexible work schedule. Unique space-sharing arrangement. Ideal for a G.P. or Specialist. Call: (416) 967-7179 days or (416) 489-8307 evenings.

ONTARIO—West end Toronto: PRACTICE FOR SALE. Two operatories. 10 year old practice. Installation & wiring in third operatory. Excellent practice. \$120,000.00. Please write # 2481.

ONTARIO—Thunder Bay: Dentist joining staff of college. Long-established, busy, solo practice. Two-year old building, 4 operatories, outstanding recreational opportunities. Practice for sale and building for sale or lease. Call (807) 768-0586 evenings.

NORTHWESTERN ONTARIO: Tired of the city life? Here is your chance! Modern dental practice for sale or lease in beautiful Dryden, Ontario. Bookings of two months. High gross. Owner returning to grad school. The price is more than right! Call collect: (807) 223-6101 or (807) 223-6262 after 5 pm.

SOUTH CENTRAL NEW BRUNSWICK: New clinic available. 4 ops. Expanded hours in fast growing, very central retail area of strip malls. 6 day facility, 3-4 day week rotating partners. NO₂ desirable. Excellent recreational area. Please reply to CDA Box 2474.

NOVA SCOTIA: Well-established family practice, modern 5 chairs, all fully-equipped, x-ray units and fibre optics, panellips, ceph, NO₂, large lab, private office and efficient booking and recall system. Will assist in orderly transition and maintaining of patient loyalty. Don Stephenson (902) 422-2214 (home) (902) 429-1888 (office).

NOVA SCOTIA—Lunenburg: Established practice for sale in medical/dental centre. Includes two fully-equipped operatories with shared panoramic x-ray and hygienist facilities. Just one hour from Halifax. Please reply to: Robert Murray DDS, P.O. Box 370, Lunenburg, Nova Scotia, B0J 2C0 or phone (902) 634-8880.

NOVA SCOTIA—Sackville: Situated 20 minutes from Halifax in enclosed mall in developing suburban area. 3-year-old practice with excellent rent and lease arrangements. 15 new patients per week, plus 1500 recall patients. Dentist wishing to consolidate effort in other existing practice. Priced for immediate sale. (902) 466-5484.

NEWFOUNDLAND—near St. John's: Well-established family practice and a house. Offered for an early sale as owner is returning to graduate school. Good gross and excellent net. Apply in confidence to CDA Box 2480.

Associateships Available

NORTHWEST TERRITORIES: Well-established family practice requires a capable, conscientious associate. Modern facilities with excellent support staff. Contact: Patricia Bell, Box 1570, Hay River, NWT X0E 0R0.

NORTHWEST TERRITORIES: Position as associate in modern practice in Iqaluit. Because this involves travel to communities, post-graduate experience preferable. Only enthusiastic, adventurous applicants willing to stay at least two years need apply. Reply to Dr. Hassan Adam, Adam Dental Clinic, P.O. Box 1118, Yellowknife, NWT X1A 2N8.

BRITISH COLUMBIA—Abbotsford: ASSOCIATE REQUIRED Associateship with view to partnership available to career minded dentist. Well-established, busy general practice is located one hour east of downtown Vancouver. Call: Dr. A. Quadir (604) 852-8487.

BRITISH COLUMBIA—Nanaimo: Associate required. Excellent opportunity in busy and growing practice in mall setting. Wonderful climate and recreational facilities. Close to Vancouver and Victoria. Reply: Dr. Patricia Crosson — days (604) 754-1949, evenings (604) 468-9892.

ALBERTA—Edmonton: Full-time associate required for busy mall practice. Well-equipped with 3 full operatories and pan. Excellent opportunity for new graduate or established practitioner. Partnership opportunity. Reply to Dr. Brian Piscesky (403) 487-8793.

ALBERTA—Red Deer: Associate needed on a full- or part-time basis for a busy Mall practice. Partnership a definite possibility for the right individual. Call (403) 346-1714 after 6:00 pm.

ALBERTA—St. Paul: Associate required for very busy rural practice in St. Paul with possibility of future buy-in. Associate could begin June 1990. St. Paul is a town of 5200 people located 200 km northeast of Edmonton. Enthusiastic, quality-conscious individuals are asked to contact: Dr. Larry Hodinsky, Box 235, St. Paul, Alberta T0A 3A0. Tel: (403) 645-2232 Bus. (403) 645-5482 Res.

SASKATCHEWAN—Regina: Full-time associate wanted for growing family practice. Excellent opportunity for committed dentist. Reply to: Dr. R. Katz (306) 924-1494.

ONTARIO—St. Catharines: Associate wanted for modern, store-front location. Seeking dynamic, team-oriented individual to join established, highly preventative, general practice with motivated, congenial staff and buy-in potential. In scenic Niagara, minutes from excellent golf and sailing, 20 minutes to US border and 1½ hours from excellent skiing. Call Vanda at (416) 688-1661 collect.

ONTARIO—Leamington: Associateship leading to ownership. We require a special person to join our rapidly expanding general dentistry practice in a recently-completed, state-of-the-art facility. This individual must believe in clinical excellence, in the value of a team approach and in the importance of on-going continuing education. A full-time position is available immediately. If you are seeking a challenging and rewarding future in dentistry, please call (519) 322-2866 and ask for Lynn.

ONTARIO—Mississauga: Full-time and part-time associates needed for new modern Mississauga office. Excellent opportunity for progressive practitioner. Storefront location in shopping plaza, 250,000 sq ft. Modern facilities in professional walk-in medical-dental. Positions available June 1990. Call: (416) 452-7111.

ONTARIO—Niagara Falls: Associate wanted for modern, family-oriented Group Practice. Fully computerized with progressive Hygiene Department and modern dental facilities. Partnership the

Ultimate goal. Contact person — Ms. F. Harrison, (416) 356-0222.

ONTARIO—Penetanguishene: Ambitious full- or part-time associate wanted for a busy well-established, growing, high-quality, family preventive practice. Located in beautiful year round recreational atmosphere of southern Georgian Bay. Fabulous boating, fishing, hunting, golf and skiing available. Modern, bilingual, fully-computerized, open concept four-operator, quality facility, with full-time hygienist. Progressive, relaxed atmosphere offers unique and excellent opportunity for a young, conscientious, dynamic, energetic graduate or established dentist to practise all branches of dentistry with an enthusiastic and talented staff. Hospital privileges are available. Highly motivated, exceptional caring dentist as an associate, with a view to a definite partnership possibility wanted. Present associate relocating. Solid professional environment, along with encouraged continuing education will allow you to maximize your potential in dentistry and will provide you with an exciting and rewarding experience. Call in confidence, collect: Days: (705) 549-3355, evenings: (705) 526-5550.

QUEBEC—Pincourt: Dentist bilingue avec possibilité d'association pour clinique à l'ouest de Montréal. Contactez Dr. De La Fuente, au (514) 453-0830.

NEW BRUNSWICK—Dalhousie: Venez visiter la Baie des Chaleurs. Associé ou partenaire demandé pour pratique dynamique et multidisciplinaire. Bureau rénové en 1989, 5 salles opératoires. Clientèle avec régime d'assurance. Grand bassin de population à 15 minutes. (506) 684-2747 ou 684-5873.

NEWFOUNDLAND—Marystown: Associate wanted for rural Newfoundland practice. Current associate nets \$100,000 plus per annum. Full book plus friendly staff. Latest equipment and techniques in this busy office. Please write CDA Box 2485.

Auxiliaries

BRITISH COLUMBIA—Abbotsford: HYGIENIST WANTED Full-time hygienist required for busy practice in Abbotsford,

British Columbia (one hour east of downtown Vancouver). Applicants must be career minded. Being a "team-player" with above average verbal skills essential for this position. Contact: Mr. M. Motani (604) 852-8487 (collect).

Opportunities Available

BRITISH COLUMBIA—Kootenay: CERTIFIED DENTAL HYGIENIST wanted in southern British Columbia, Kootenay. Full-time or part-time. Reply to CDA Box #2482.

BRITISH COLUMBIA—Gray Creek: SHANGRI-LA Are you seeking a clean, natural environment? mild winters? quality, independent clientele? flexible, relaxed lifestyle? an opportunity for the future? low overhead, affordable office? My practice overlooks pristine Kootenay Lake, the Jewel of Southeast British Columbia. Write, Dr. Prussin, Gray Creek, B.C. V0B 1S0.

BRITISH COLUMBIA—Prince George: Enjoy the great outdoors of the northern interior! Female dentist with 5 years experience in growing, general, family-oriented practice has an opening in a modern, computerized office for someone seeking a long-term arrangement with possibility of future buy-in. Reply to CDA Box 2479.

MANITOBA—Neepawa: Dental office recently vacated in Neepawa, rural Manitoba, half-way between Brandon and Winnipeg, to occupy same building as two established General Practitioners. Neepawa is situated between two national parks, excellent outdoor recreation. If interested please write to Dr. O. White, Box 1660, Neepawa, Manitoba, R0J 1H0 or phone (204) 476-3381 working hours.

ONTARIO—London: PERIODONTIST. Exceptional opportunity in busy, well-established, broad referral based practice. Associate/partnership. Hygienist, excellent staff, prestige office. Please reply to CDA Box 2478.

ONTARIO—North Toronto: Position available immediately for a paediatric dentist with Ontario certification in a modern, well-established private practice. Full range of dental care provided from preventive to orthodontic services; well care and special needs (mentally and physically compromised) children and

adolescents. Associateship with future prospects for partnership or cost-sharing arrangement. Please reply to CDA Box 2426.

NEWFOUNDLAND—St. John's: Busy general practice for sale. High gross and low overhead in newly renovated building. Goodwill priced low for quick sale. New owner simply has to assume equipment and site lease.

AUSTRALIA—Stawell: Busy dental practice for sale in Western Victorian town of Stawell. Wine growing region close to Grampians National Park. Practice is still growing, and there is great opportunity for further expansion, with room for 2 more surgeries. Sale is regretably necessary due to family reasons. Price AUS \$150,000 negotiable. For further details apply to Dr. Charles Reid, 52 Main St., Stawell, Victoria 3380, Australia, or telephone (53) 524792.

HONG KONG—Wanchai: Well-qualified and experienced Dental Surgeons/Orthodontist/Oral Surgeon are invited to join a multi-specialty polyclinic in Hong Kong as partner/shareholder. Kindly write to Dr. Vincent IP, M.D. MRCP, Henessy Road, P.O. Box 20094, Wanchai, Hong Kong.

Equipment

ALBERTA: 2 Fiber-optic high-speed handpieces: i) Kavo contact Air 632C, complete with spare turbines and bulbs; ii) Midwest Tradition, with 2 new spare turbines, bulbs etc. Both are totally complete with light source, in excellent condition and ready for action. — Asking \$500 for both.

ONTARIO: 1 Cox chairside lab, 1 Cox storage lab, 1 Cox assistant unit 2. Floor display models. Never used. Colour Acorn. Contact: Dr. T. Cox, Guelph Bus (519) 824-4970 or Home (519) 763-0626.

Vacation Rentals

BRITISH COLUMBIA—Whistler/Blackcomb: Walk to village and lift from my super 3 bedroom + loft chalet! Stunning view, fully-equipped. Sleeps eight comfortably. \$2000 per week. Call Dr. David Speirs (604) 874-3404.

Don't wait for a crisis

It is unfortunate that many in our profession only lift their heads when there is a crisis. Rather than trying to plan and manage change, we react to crises.

Every time there is a crisis, whether it be professional incorporation, denturists, insurance company meddling, capitation, retail dentistry etc., some dentists scurry around trying to decide what to do. Individual dentists attack their dental association for not doing enough, but seldom volunteer for anything themselves. This apathy or antipathy towards voluntarism is not confined solely to organized dentistry.

For a number of years I have tried in vain to get dentists more interested and involved in politics; however, generally speaking, they don't seem to be interested. They seem oblivious to the fact that governments affect their lives. Legislation can affect their incomes and hence their lifestyles.

The only way we can have any influence is to get involved and stay involved politically either by donating funds or time — preferably both. Politics is the kind of activity that must be pursued continuously over the longterm or you will likely have no influence. Let me provide you with an analogy that might be more meaningful.

If you had a phone call from a patient who had a toothache and wanted to be seen immediately, would you be favourably disposed to seeing this patient if he/she had a long history of only calling when there was an emergency, didn't pay bills on time, always showed up late or cancelled without notice?

Just substitute "dentist" for "patient" in the above and "doesn't donate or help in any other way" for everything after "patient" and you should understand why organized dentistry is unlikely to have much influence in the political process without a drastic attitudinal change.

Politicians view health professionals generally the way we would view that patient!

Dentists spend countless hours complaining about patients with low dental IQs. Why don't we become a little more introspective and sensitive and raise our "political IQs".

*Gordon J. Chong, DDS,
Former Executive Alderman,
City of Toronto
Former Vice-Chairman, TTC*

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Visitez nos kiosques 605, 607, 609, 611, 613, 615 aux Journées dentaires du Québec

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What's all the chatter about Trident with Xylitol?

There's been a lot of talk about xylitol lately. Like many other health professionals, you may have heard about it. But do you really know about it? Perhaps it's time you did.

Xylitol – more than just a sweetener.

Xylitol is, quite simply, a natural-source sweetener. However, clinical studies have demonstrated that xylitol is also an effective weapon against tooth decay.

Research indicates that xylitol fights cavities.

Extensive research conducted over the last decade shows that xylitol cannot be metabolized by decay-causing oral microflora (i.e. *Streptococcus mutans*). As a result, xylitol does not promote adhesion and formation of dental plaque. What's more, xylitol has been observed to actively inhibit the metabolism of *S. mutans*.

Tell your patients about it.

This discovery has professionals the world over, talking. You, too, can do the same and talk to your own patients about Trident.

When used in conjunction with a regular oral hygiene programme,



Trident with xylitol can play a significant role in cavity prevention; particularly after



snacking, when access to a toothbrush or dental floss may not be available.

Read about it.

All xylitol case studies are available to you on request.¹ In the meantime, we invite you to order your own Trident sample packs. And do some chatting of your own.

¹Case studies include: The Finnish Xylitol Study, 1982-1987; The French Polynesian WHO Study, 1981-1984; The WHO Hungarian Study, 1981-1984; The Montreal Chewing Gum Study, 1985-1987; University of Michigan Study, 1988.

For more data write to: Xylitol Information, Warner-Lambert Canada Inc., 2200 Eglinton Avenue East, Scarborough, Ontario M1L 2N3

¹Reg. TM/M dep. Warner-Lambert Company, Adams Brands.



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Dental Patients' Charter of Rights

- Patients have the right to be examined and diagnosed by a licensed dentist.
- Patients have the right to an explanation of treatment alternatives and costs before treatment.
- Patients have the right to receive treatment according to the standards of the profession.
- Patients have the right to be treated in a safe and healthy environment.
- Patients have the right to be cared for by the dentist of their choice.
- Patients have the right to receive prompt emergency care.
- Patients have the right to an avenue by which to express complaint.

Canadian Dental Association — Board of Governors
(Motion passed August 1989)



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CDA MISSION STATEMENT

The Canadian Dental Association serves the dental profession — and through the profession the Canadian public — as the authoritative national voice and resource for dentists.

In cooperation with the provincial dental associations and affiliated organizations, CDA offers services, in both official languages, intended to support and advise all areas of dentistry and to represent, protect, promote and develop the interests of the dentist as ethical practitioner, professional, educator, student, researcher, business person, citizen and individual.

CDA recognizes a particular responsibility to contribute to the development of national positions and standards related to dentistry, dental education, dental research, dental equipment, dental materials and dental personnel.

CDA is dedicated to the principle that all Canadians should have the best oral health care it is possible to provide; it actively seeks input from and dialogue with governments, consumers and all those interested in dentistry to enable it to serve more effectively both its members and the Canadian public.

Introducing New Advanced Tartar Fighting Aqua-fresh



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[†] Supragingival Calculus Formation Study: "A Study to Compare the Effects of Two Dentifrice Products on Adult Supragingival Dental Calculus Formation" 1989. Data on file, SmithKline Beecham Canada.

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PATIENTS' CHARTER OF RIGHTS

In August 1989 the CDA Board of Governors, upon recommendation of the Ethics Committee, and in consultation with provincial associations and licensing bodies, approved the Patients' Charter of Rights.

The history of the Association, its policies and Mission Statement, have always clearly stated the principle all Canadians should have the best oral health care it is possible to provide. The Patients' Charter of Rights, within a society where consumerism is a growing concern, is one more proactive indication the CDA, comprised of thousands of Canadian dentists, is a caring organization.

The cover design was created by Louise Després Jones, Assistant Editor, Journal of the Canadian Dental Association.



What's all the chatter about Trident with Xylitol?

There's been a lot of talk about xylitol lately. Like many other health professionals, you may have heard about it. But do you really know about it? Perhaps it's time you did.

Xylitol – more than just a sweetener.

Xylitol is, quite simply, a natural-source sweetener. However, clinical studies have demonstrated that xylitol is also an effective weapon against tooth decay.

Research indicates that xylitol fights cavities.

Extensive research conducted over the last decade shows that xylitol cannot be metabolized by decay-causing oral microflora (i.e. *Streptococcus mutans*). As a result, xylitol does not promote adhesion and formation of dental plaque. What's more, xylitol has been observed to actively inhibit the metabolism of *S. mutans*.

Tell your patients about it.

This discovery has professionals the world over, talking. You, too, can do the same and talk to your own patients about Trident.

When used in conjunction with a regular oral hygiene programme,



Trident with xylitol can play a significant role in cavity prevention; particularly after



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Read about it.

All xylitol case studies are available to you on request.¹ In the meantime, we invite you to order your own Trident sample packs. And do some chatting of your own.

¹ Case studies include: The Finnish Xylitol Study, 1982-1987; The French Polynesian WHO Study, 1981-1984; The WHO Hungarian Study, 1981-1984; The Montreal Chewing Gum Study, 1985-1987; University of Michigan Study, 1988.

For more data write to: Xylitol Information, Warner-Lambert Canada Inc., 2200 Eglinton Avenue East, Scarborough, Ontario M1L 2N3

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P.Q.	_____ x	\$43.60 =	_____
ONT	_____ x	\$43.20 =	_____
MAN/SASK	_____ x	\$42.80 =	_____
ALTA	_____ x	\$40.00 =	_____
B.C.	_____ x	\$42.40 =	_____

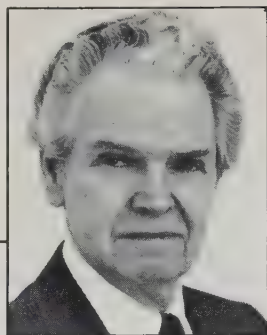
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“What Do You Mean You Sympathize with the Prime Minister!”

A former president of the Canadian Dental Association was overheard to say, “You know, I really have sympathy with the Prime Minister”. Of course there was a cry of astonishment from several corners, “What do you mean? Sympathy for *him*?”.

The CDA President (of by-gone years) went on to explain there is a certain analogy between the Canadian form of government and a national dental association. Each strives to have 10 jurisdictions work toward a unified goal, beneficial to the greatest majority. Canada has Parliament with the Prime Minister our elected leader; Dentistry has the CDA Board of Governors and a President. Election to Parliament and the Board of Governors is “rep-by-pop” — the largest provinces having the most members and potentially, the greatest influence and power. Both CDA and the Government of Canada have a bilingual policy of conducting business.

Canada and Dentistry both struggle and strive under the old 1867 BNA Act when Sections 92 and 93 gave jurisdiction of health and education to the provinces. The Act decreed that eventually we would end up with 10 separate Dental Acts determining the education, scope and discipline of our profession.

The analogy continues, cloaked in frustration, when both government and dentistry attempt national programs. The “my province — me too” syndrome far too often overrides common sense, national endeavour and efficiency.

Without amplifying on the Prime Minister’s attempts to unify Canada, it is possible to depict numerous examples where dentistry loses effective national impact when provinces choose to “go-it-alone”.

- **Dental Awareness:** In 1984 CDA launched the single biggest Public Dental Awareness Plan in our 88-year history. It was an ideal opportunity to carry a unified message from coast to coast. Not so! Some provinces “are in, some out”. Some are “cool, some hot”. Others don’t care!
- **Infection Control:** In 1987 CDA called a National Conference on Injection Control. CDA developed and printed scientifically acceptable guidelines. Recent publications in provincial journals have either totally ignored CDA efforts or gave recognition to American guidelines regarding some drugs not even available in Canada.
- **Malpractice Insurance** is a concern to every dentist and is an area where unification would be most beneficial — both in administration and finance. But no, not in Canada. The province of Quebec chose its own plan! (in fairness, Ontario’s plan was in place before CDSPI and it appears to serve their dentists well).
- **EDI:** Electronic data interchange is an exciting “breakthrough” dealing with dental insurance data. Yet few issues in recent years were so stubborn in eluding a national agreement — CDA and Ontario spent countless hours debating “what to do now”.

The list for national “togetherness” could go on and on. It could include the supply and demand of services, health hazards, waste control, mailing lists and others — all crying out for a national policy. But it isn’t the Canadian way of doing things. Perhaps it’s our heritage; perhaps we are too diversified, spread over vast tracts of land. Perhaps we are just slow learners.

Whatever the reason, as a nation and an association, we have much to learn. We can sympathize all we want with Prime Ministers and Presidents but the only logical course to set is “*united we stand, divided we fall*”.

P. Ralph Crawford, BA, DMD

Editor: *Journal of the Canadian Dental Association*

President's Column



How Many Units of OHI Did You Sell Today?

Two recent events prompted me to write this column. First, I phoned a confrère at the end of his working day to consult on a particular case. This dentist said to me, "Hold on for a minute. . . the tape is just coming in. I think I had the best day ever. Yes, we sold thirty units of oral hygiene instruction today!"

Second, during my recent search for an additional staff person, I interviewed an assistant from an Ottawa area office. She informed me that in this dental office they took the first 15 minutes of each day to review the insurance plans of each patient who would be seen that day in order to assess their remaining insurance limits and scope for selling additional units of crown and bridge to these patients.

At the CDA's Shared Concerns Conference which I attended last fall, under the title of "Plan Design Changes on the Horizon", several related topics were discussed. Insurers are introducing changes such as policies to pay for nine month recalls only (this is already having an effect across the country), reimbursing for annual bitewing radiographs only, the elimination of any TMJ coverage, and the inclusion in the contracts of workmanship guarantees (that is, no reimbursement for the replacement of a restoration within two years), etc.

In his recent editorial in the *Adjudicator* (the official publication of the Canadian Association of Dental Consultants), Editor, Dr. Edward Mazak, writes: "In most provincial fee guides, the number of procedure codes has approximately doubled from 800 to 1600. For dental consultants accustomed to monitoring a dozen "abusable codes", the number has risen to approximately eighty."

"New procedure codes will perpetuate the increasing number of dentists who shop the fee guide and automatically use the right hand column fees. This seems to be most common with recent graduates and dental practices which have computerized their manner of submitting claims. Unfortunately for some of these computerized offices, efficiency of claim submissions is now far secondary to the ability to make "instant fudge"."

In a separate section of the newsletter, eighty-some possible abusable codes are listed. They include such items as treatment planning, OHI, occlusal equilibration, complicated oral surgery codes and some periodontal treatment codes. (A complete list is available from CDA Resource Library).

As CDA President, I certainly don't concur that the newsletter does justice to the dental profession's perspective on this issue, and I know there are often sound professional reasons for treatment that an insurer might question. As an ethical practitioner, however, I do have some concerns. Saying that every dentist is abusing the system is like stating that each and every member of the Airborne Unit at CFB Petawawa wears a size nine boot. I remember, as ODA President some five years ago, any mention of support for profiling as a response to such concerns would have led to my impeachment. And yes, I was personally opposed to profiling at that time. But if profiling will detect the rotten apples in the proverbial barrel before we are all tainted, then I say, let's get on with it.

More frequently, now, it appears patients are presenting to our offices with scaled down dental plans, higher co-payments, and some are dropping their dental plans all together for other benefits. Again, at the Shared Health Concerns Conference, I first heard of the term "true dental plans" (as opposed to dental pre-payment plans). These risk-type insurance plans of the future will leave the basic dental care to the patient and only underwrite catastrophic and/or major unexpected dental conditions.

Dramatic changes are being introduced in response to a flood of perceptions about developing patterns in dental claims. Without attaching any blame, one has to look no further than our government medical plans, childrens' dental and provincial dental benefits plans, to see the water rising abruptly.

Those taking the high ground — and that means most of us — are in danger of being swept away. In the interest of our patients and our profession it is clearly time for each of us (and for our professional bodies) to do what we can to try to stem the tide.

*Kevin L. Roach, BSc, DDS,
President of the Canadian Dental Association*

Why Exempt Status: CDA Position on GST

In the October 1989 issue of *Communiqué*, we reported that, as a result of meetings with the Department of Finance, the CDA Taxation Committee had achieved tax exempt status for virtually all dental services (except purely elective cosmetic treatments).

Recently, concern has been expressed by a few dentists from across Canada about the tax exempt status of dental services in the GST Draft Legislation. These concerns surfaced following presentations by accountants who claim that dentists would be better off if their services were taxable. The accountants argue that under a taxable status for dental services, input tax credits could be used to remove the impact of GST on approximately 55 per cent of expenses in a dental practice.

This point of view would be valid if tax saving alone was considered. If dental services were taxable, our patients would pay 7 per cent higher dental fees in 1991, while dentists would pay no GST on expenses.

Under the proposed tax-exempt status, our patients will pay approximately 2.5 per cent higher dental fees in 1991 in order to reimburse the dentist for the GST paid. In both cases, the dentist experiences no increased tax cost.

The fact that dental services are "price sensitive" to the degree that a 7 per cent increase in 1991 (in addition to usual inflationary increases) may lead to less demand for dental services, strengthens CDA's position.

In earlier discussions with the Department of Finance, the Canadian Dental Association put forward a proposal where dental services would be "zero-rated" under the GST system (i.e. no tax on dental fees and no tax on dental practice expenses). This proposal was not accepted by the Department of Finance, nor was "zero-rated status" accepted for medical services or any other health service.

A closer look at the GST

The Goods and Services Tax draft legislation was released by the Minister of Finance, the Honourable Michael Wilson, on October 13, 1989. The GST is designed to replace the existing federal sales tax on January 1, 1991.

In the Technical Paper released earlier in 1989, all dental services (other than

The impending federal Goods and Services Tax has aroused dismay, anger, fear and accusations of "unfair" and "unconstitutional". Professionals have shown a keen interest because of the "services" aspect.

CDA's tax expert par excellence — Dr. Robert N. Hicks — recently provided a detailed report about how it will affect dental practitioners. This was highlighted in the March edition of CDA's "Communiqué". Because it is such vital information, and you may have missed it, or mislaid your copy of the "Communiqué" — the Journal has reprinted the complete text of Dr. Hicks' report herewith.

those services that are purely elective cosmetic dental services) were classified as exempt from the Goods and Services Tax.

Part VII Schedule I (EXEMPT SUPPLIES) Part II (HEALTH CARE SERVICES) of the Draft GST Legislation includes two statements that relate to the practice of dentistry:

definition: "medical practitioner" means a person entitled under the laws of a province to practice the profession of medicine or dentistry;

clause 3: All of the following supplies of services where the service is medically necessary for the purpose of maintaining the health, preventing disease in, or diagnosing or treating an injury, illness or disability of, an individual:

- (a) a supply made by a medical practitioner of a service, other than elective cosmetic surgery or an elective cosmetic dental service.

Impact of GST on the profession

If these two statements are included in the GST legislation that is passed by parliament, dental patients will not have to pay the proposed 7 per cent tax on

dental services, unless the dental service is an elective cosmetic dental service.

Exempt status means that the consumer does not pay GST, but the provider of this service (or goods) will be required to pay GST on their supplies and services. Therefore, the dental practice will have to pay the 7 per cent GST on its taxable goods and services (e.g. all goods and services other than wages, benefits, financial services, license fees, certain educational costs, and costs related to artificial teeth). Dental fees are expected to be increased by approximately 2.5 per cent in 1991 in order to offset the impact of the proposed GST legislation. If dental services were taxed under the GST program, dental fees would rise by 7 per cent in 1991.

EXAMPLE:

INCOME:

Fees \$250,000.

EXPENSES:

		GST Tax 7%
Wages	62,000.	Exempt
Loan payment	2,000.	Exempt
Bus. tax/ licenses	400.	Exempt
Dues/licenses	2,000.	Exempt
Other	83,100.	5,817.
	\$150,000.	

Exempt Status

Increased costs \$	5,817.	= 2.3% fee
as a % of		increase
Total fees	\$250,000.	

Taxable Status

7% GST on fees	\$17,500	= 7.0% fee
as a % of		increase
Total fees	\$250,000.	

GST vs. FST

It is proposed that the GST program will replace the present Federal Sales Tax system. The current FST rate is 13.5 per cent applied at the manufactured cost level or at the imported value level. The 13.5 per cent FST will be replaced by the 7 per cent GST, applied at the retail or imported value of goods and services.

Under the present tax system, the cost of the Federal Sales Tax has been a cost to suppliers of office and dental supplies

and equipment — and is included in the retail price of these goods. When the GST system goes into effect, this tax cost to suppliers will be eliminated through an "input tax credit" procedure. In theory, the retail price of all goods and equipment eligible for FST should decrease by the present amount of Federal Sales Tax paid by the supplier.

EXAMPLE:

Present retail value of goods = \$100.00
 Suppliers' tax cost is included
 in retail price: e.g. manufac-
 tured cost \$50. $\times$ 13.5% FST = \$ 6.75

Under GST, there is no tax
 cost to suppliers: therefore,
 retail price of goods could be = \$93.25

To the dentist, actual cost of
 goods will be;
 \$93.25 + 7% GST = \$99.78

This example shows no final cost increase on FST eligible goods to the dental office when the GST system is implemented. This bears out the statement that when the originally proposed GST rate of 9 per cent is decreased to 7 per cent, the inflationary impact of the new tax system is negated when applied to such goods. If all of our suppliers of

office and dental goods and equipment were to reduce retail value by the amount of Federal Sales Tax they now pay, the impact of GST on dental practices could be reduced to approximately 1 per cent of gross dental fees.

Zero Rating

PART VII Schedule II (Zero-rated Supplies) Part II Medical Devices of the Draft Legislation classifies artificial teeth as a "zero-rated supply". Zero-rated means that no tax is required on the supply of any part, accessory or attachment or the supply of a service of installing, maintaining, restoring, repairing or modifying of any property mentioned in that Schedule. More information will be provided on the impact of zero-rated status on artificial teeth in future articles.

Impact on PMCs and Leasing

Two specific areas in dental office expenses will be negatively impacted by the GST system. Professional Management Company services and equipment leasing services will both be subject to the 7 per cent GST. These additional dental practice expenses cannot be claimed as "input tax credits" since the practice is supplying tax exempt services.

Leasing involves providing property (e.g. equipment) via a leasing agreement

which includes the cost of the property (equipment) plus a leasing fee. GST will be paid on the equipment cost and the leasing fee portions of the leasing payment. Professional Management Companies provide services and goods for a management fee. The services, including all wages and benefits, plus the management fee will be subject to the GST. It should be noted that incorporated professional practices will be treated the same as individual dental practices (e.g. **no GST on wages and benefits**).

Watch for more information on leasing agreements and Professional Management Companies in future articles.

Professional Management Company agreements and Leasing agreements for 1990 should be examined carefully for implications when GST comes into force in 1991. Early discussions with your tax advisors on these two items are recommended.

After considering all of the issues carefully, the Board of Governors of the Canadian Dental Association concluded that the tax exempt status for dental services was the best option for both the Canadian dental patient and the dental practice. Δ

Robert N. Hicks, DDS, MS
 Chairman, CDA Taxation Committee

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This advertisement is directed to Canadian citizens and permanent residents of Canada.

Progress achieved in management of perio disease

A medical progress report notes periodontal disease continues to be one of this continent's principal dental problems and a major health care concern, but help appears to be on the way soon.

New research using x-rays and computers to detect gum disease, ways to analyze substances in the mouth to better detect bacteria or even placing synthetic fibers treated with antibiotics into "periodontal pockets" brings considerable promise to the diagnosis and treatment of periodontal disease.

The report, published in the Feb. 7, 1990 edition of the *New England Journal of Medicine*, says the treatment and prevention of periodontal disease is still a major health care problem, despite progress in the cause and development of the disease. Periodontal diseases, the report says, are the most common causes of tooth loss.

"The next decade should bring impressive advances in the management of this widespread disease," writes Ray C. Williams, DMD, of the Harvard School of Dental Medicine, Boston. "New imaging techniques that use subtraction radiography with computer enhancement are being used in clinical trials to detect small losses of alveolar bone (tooth sockets) in a few months, rather than the year which may be necessary with conventional radiography," Dr. Williams notes.

Detecting substances that cause disease

He also says fluid from the gums can now be obtained to measure levels of enzymes and hormones. "The presence and amount of several substances may prove useful in detecting the progression of active periodontal disease," Dr. Williams says. Studies are being initiated to verify these techniques, which can detect specific bacteria within the periodontal pocket more easily than culturing.

According to the American Academy of Periodontology (AAP), gum disease affects three out of four people at some point in life. "More than half of all adults currently have a form of gum disease," says Dr. Gary Maynard, president of the Chicago-based group and a Richmond, Va., periodontist.

John P. Laba Memorial Research Award

A Research Award has been established in memory of Dr. John Paul Laba, an oral and maxillofacial surgeon who practised in Kentville, Nova Scotia. He died in a family hayride accident, with two of his daughters, near Moncton, New Brunswick, last Thanksgiving.

The income earned from the fund established by friends, family, patients and colleagues of Dr. Laba, will provide for this Award, which may be given annually. The recipient will be the dentist accepted in the first year of the Graduate Program in Oral and Maxillofacial Surgery, and the Award will be given exclusively for the presentation, dissemination and/or publication of research related to oral and maxillofacial surgery.

For further information please contact Dr. D.S. Precious, Chair, Department of Oral and Maxillofacial Surgery, Dalhousie University, 5981 University Avenue, Halifax, N.S. B3H 3J5. Telephone (902) 494-1679. Δ

Drug advances: regenerating bone tissue

Other advances that show promise include delivering antibiotics locally to periodontal "pockets" (space between teeth and gums). Drugs to treat arthritis, such as flurbiprofen, are even being tested by periodontal researchers to see if the drug can be useful in blocking bone destruction around the teeth.

Finally, Dr. Williams writes that research into the regeneration of lost periodontal structures is being actively pursued. "Several substances, including various growth factors and demineralized bone powder, may be applied during periodontal surgery and can be useful in stimulating the regeneration of new alveolar bone," he says.

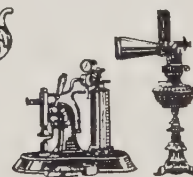
Dr. Williams also notes studies are being performed on the use of a Teflon filter surgically placed around a diseased tooth root to "regrow" lost dental bone

tissue. This membrane works as a barrier and helps strengthen supporting structures of a tooth by letting ligament cells grow around it rather than gum tissue.

New advances to augment current therapies

The AAP notes all of these advances will augment current periodontal techniques such as scaling, root planing and surgery to provide more specific therapy for people with periodontal disease. Dr. Williams says an important factor in slowing or arresting disease progression is the control of bacterial plaque by brushing and flossing.

The American Academy of Periodontology is a 5,400-member dental association specializing in the prevention, diagnosis and treatment of diseases affecting the gums and supporting structures of the teeth. Periodontics is one of eight dental specialties recognized by the American Dental Association. Δ



CDA OPENS MUSEUM Donations Requested

When the CDA completes its Ottawa headquarters expansion and renovation program in mid-summer an area of the library will be set aside for a small museum. Memorabilia from CDA's 88 year history which had to be kept in storage due to lack of space will now be displayed in attractive new surroundings.

Plans are underway to have the museum "mobile". Displays will be changed on a regular basis to suitably depict different eras of our rich dental history.

Donations of museum quality dental artifacts would be much appreciated. Particularly requested are larger items such as dental chairs, units, cabinets and X-Ray machines.

For further information contact Dr. Ralph Crawford, CDA Ottawa, 613-523-1770 or toll free East 1-800-267-6364, West 1-800-267-6354

Dr. Ten Cate heads Ontario Health Care Commission



Dr. Richard Ten Cate

Dr. A. Richard Ten Cate, until recently Dean of the Faculty of Dentistry, University of Toronto, has been named chairman of a new commission which will make recommendations on the direction of Ontario's health care system.

The Commission on the Future of Health Care in Ontario will examine and comment on two Ontario government discussion papers on health care: *Deciding on the Future of our Health Care* and *From Vision to Action*. Both of these documents, and the response to them, will be instrumental in charting the future organizational and financial base of health care services in Ontario.

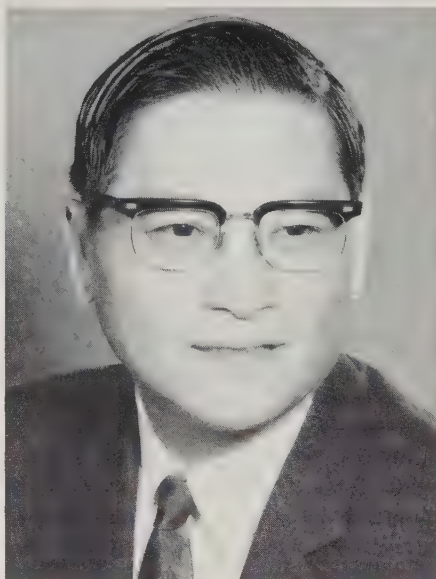
The Commission will also make recommendations on:

- the mission, goals and objectives of the University of Toronto in the health science field
- the structure, education and research directions of the University's health sciences divisions
- the appropriate nature and characteristics of the relationships of the University with health care institutions in the community, such as hospitals and the Board of Health.

Commission members are Allan Beattie, Chairman of the Board, Hospital for Sick Children; Dr. G. Bonham, East York Public Health Officer; Prof. John W. Browne, Principal, Innis College, U of T; Dr. Gail Donner, Director of Nursing Education, Hospital for Sick Children; Dr. John Provan, Associate Dean, Faculty of Medicine, U of T; Maureen Quigley, President, Maureen Quigley Associates; Vick Stoughton, President, Toronto Hospital;

Founding Dean, U.B.C.

Colleagues mourn passing of Dr. S. Wah Leung



Dr. S. Wah Leung

Dr. S. Wah Leung, the founding Dean of the Faculty of Dentistry of the University of British Columbia passed away late last year in a Vancouver hospital.

He graduated from McGill University, Montreal, with a combined BSc-DDS degree and the Gold Medal for the highest standing in his graduating class. He then went to the University of Rochester, N.Y., for graduate work in physiology and to begin his research career. Soon after receiving his PhD degree he was named an Associate Professor at the University of Pittsburgh School of Dentistry, where he subsequently served as Chairman, Department of Physiology and Director of Graduate Education. At this time, Dr. Leung became an active researcher in the fields of biochemistry of saliva and the mechanisms involved in the formation of dental calculus. His published research papers soon established him as an international authority in his field and resulted in appointments to many prestigious national and international research organizations.

Prof. Carolyn Tuohy, Department of Political Science, U of T; and, Prof. R. Jay Turner, Department of Sociology, U of T.

In 1961, Dr. Leung was appointed Professor of Oral Biology at the new dental school at the University of California, in Los Angeles.

To UBC in 1962

The following year, he was invited to become the founding dean of the new dental school at the University of British Columbia, in Vancouver.

In this new appointment, he directed his efforts to the planning and building of the new dental school, while becoming actively involved in many community organizations and activities.

At UBC, he recruited a faculty, oversaw the construction of the new building and in a few short years, built an institution which has consistently received full accreditation from the Canadian Dental Association and world-wide recognition for its high academic standing and research activities.

Accorded many honors

Dr. Leung was accorded many honors. He was an Honorary Member of the College of Dental Surgeons of British Columbia, the UBC Dental Alumni. He was a Fellow of the Royal College of Dentists of Canada, the International College of Dentists, the American College of Dentists and the American Association for the Advancement of Science.

Order of Canada

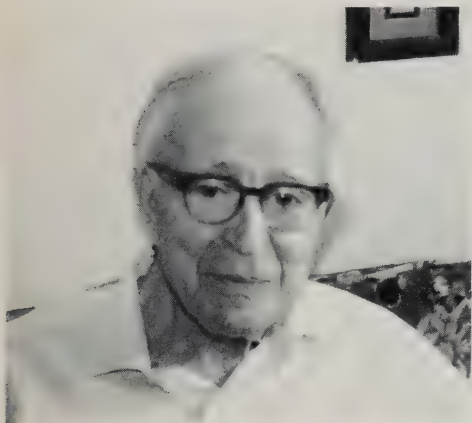
In 1987, Dr. Leung became the first dentist and the first Canadian of Chinese heritage to receive the honor and ranking of Officer of the Order of Canada. The citation accompanying this high honor read:

Dr. Leung exemplifies the highest standards of professionalism as a scientist and academic, and has contributed greatly to both the Chinese community in Vancouver and to multiculturalism in Canada. Δ

Dr. Ten Cate is presently serving as Vice-Provost of Health Sciences at the University of Toronto. Δ

Dr. Clarence E. Brooks

Canada's oldest dentist dies in his 104th year



Dr. Brooks seen during an interview by this Journal just prior to his 102nd birthday.

A simple nine-line obituary notice appeared recently in a Toronto newspaper: "BROOKS, Clarence Edwin, D.D.S. — (Dentist at Yonge and Bloor for nearly 50 years). . . ."

It was symbolic of the quiet, gentle, scholarly dentist himself; given to understatement.

Dr. Brooks was in his 104th year.

He was the oldest living graduate of the school of dentistry of the University of Toronto, and probably the oldest in Canada. He graduated with his DDS in 1908.

Dr. Brooks practised in what is now the heart of downtown Toronto until 1957.

Interviewed for this Journal

Dr. Brooks was interviewed by Dr. Ralph Crawford, this Journal's Editor, in 1988. One hundred and two years of age at the time, and marking his 80th year as an alumnus of the Toronto dental school, Dr. Brooks was not convinced he deserved any particular fame. "Isn't it strange — all my days I have led a quiet life, not seeking any special attention or recognition, and now, without any particular effort on my part, I've managed to live beyond 100 years and have gained notoriety."

Dentistry 'a compromise'

Born and raised on a farm near Woodstock, Ontario, Dr. Brooks said that his father wanted him to be a medical doctor

and he wanted to be an engineer. So, he told Dr. Crawford in 1988, "dentistry was a compromise."

He believed that the dental school training in those early days provided good grounding for the all-round general practitioner. "The specialties hadn't been invented yet". There were few commercial laboratories and dentists performed all phases of dentistry.

Dr. Brooks recalled during the interview that he had one of the first x-ray machines in Toronto. He had gone to Rochester, New York for a three-day orientation seminar on the use of the device.

Early in his career, Dr. Brooks became an enthusiastic supporter of organized dentistry. "I hardly ever missed an ODA

convention or a good seminar, and often travelled to Chicago mid-winter meeting. . . ."

Retired 'under compulsion'

Dr. Brooks had told his interviewer that he retired "under compulsion" in 1957, at the age of 71. His wife had suffered a lengthy debilitating illness and for six and a half years, he had given devoted service as "night nurse". About this time, Dr. Brooks had the misfortune to slip on some ice and suffer severe injury to his left shoulder. A result was a tremor in his thumb and index finger. He realized he was no longer able to practice to perfection, so he finally closed the doors of his practice. And his wife died within days. They had no family. Δ

Meet the CDA Headquarters Staff ADMINISTRATION



From the left are:

Lydia Allison is CDA's very busy Membership Secretary. She updates and maintains records on Canadian dentists. She also responds to enquiries about CDA membership matters, in consultation with the Director of Administration.

Sylvie Fournier, Secretary. Sylvie performs a full range of secretarial and administrative duties for the Director of Administration. The post requires an in-depth knowledge of the Association's practices, structure and a high degree of secretarial/administrative skills.

Delmer Curry, is Shipping and Receiving Clerk. He assists the Mailroom Supervisor and the Property Manager at the CDA building.

Kelly Klassen, who is the CDA Mailroom Supervisor. She oversees all functions in the mailroom.

Terrie Lemieux is "the voice" of CDA, as Receptionist and the person who handles the telephone answering requirements of the CDA. Very often she is the first contact a person has with the Association and as such, she establishes the image of the CDA. Δ

An update, regulatory status of dental implants in Canada

An update of the regulatory status of dental implants in Canada has recently been provided by the Premarket Review Division, Bureau of Radiation and Medical Devices, Banting research Centre, Health and Welfare Canada.

The following amendments have recently been made:

Manufacturer	The Device/Status
Anchor Implant Ltd.	Anchor 1 Hydroxyapatite Coated Dental Implant — Notice of Compliance issued December 21, 1989.
Orthomatrix Subsidiary of LifeCore Biomedical Inc. (formerly Orthmatrix Inc.)	Hydroxylapatite Models HA-500 and HA-1000 — Notices of Compliance reissued July 11, 1988.
Steri-Oss Inc.	Steri-Oss Implant System — Clinical Trial Status extended to the end of January, 1991.

APPENDIX 1

As of January 18, 1990, the following manufacturers have provided data on safety and efficacy and have permission to sell their products in Canada.

Please note that the issuance of a Notice of Compliance authorizes the unrestricted general sale of the device, whereas issuance of a Clinical Trial Status constitutes permission to sell the device to designated clinical investigators *only*.

Manufacturer	Device/Status
Anchor Implant Ltd.	Anchor 1 Hydroxyapatite Coated Dental Implant — Notice of Compliance issued December 21, 1989
Bone Anchorage Systems Inc.	Dental Implant-Self Tapping Screw — Clinical Trial Status granted until the end of July 1990
Calcitek Inc.	Calcitite RM — Notice of Compliance issued November 27, 1984
Collagen Corporation	Osseodent Titanium Implant Osseodent Headless Screw Osseodent Cap Screw Osseodent Titanium TE Sets Osseodent Gold Screw Osseodent Gold Cylinder — Notices of Compliance issued March 31, 1989
Core-Vent Corporation	Core-Vent Implants (non-sterile) Core-Vent Implants (sterile) Micro-Vent Implants (sterile) Micro-Vent (hydroxyapatite coated) Implants Screw-Vent Implants (sterile) Swede-Vent Implants (sterile) *Included are various attachment systems — Notices of Compliance issued March 31, 1988 Sub-Vent Implants (sterile) — Clinical Trial Status granted until the end of June 1990 Bio-Vent Implants (sterile) (Hydroxyapatite coated) — Clinical Trial Status granted until the end of March 1990.
Interpore International Inc.	Interpore IMZ Implant System (Mechanical Attachment) — Notices of Compliance issued January 6, 1987 Interpore 200: Sterile Granules Alveolar Ridge Augmentation

Anterior Curve
Posterior Block
Unshaped Block
Alveolar Ridge Maintenance
Granules for Repair of Periodontal Defects
Rectangular Wedge
Pyramidal Wedge
Crescent Wedge
— Notices of Compliance issued March 8, 1985

IP200 Malar Onlay
IP200 C-F Rectangle
IP200 C-F Curve 90R
IP200 C-F Curve 45R
IP200 Granules
IP200 Rectangle
IP500 Square
IP500 Rectangle
— Notices of Compliance issued February 28, 1986

Nobelpharma AB

Branemark Tissue Integrated Prosthesis, Titanium Abutment, Short
Branemark Tissue Integrated Prosthesis, Titanium Abutment Screw, Short
Branemark Tissue Integrated Prosthesis, Titanium Fixture, Self-Tapping
Branemark Tissue Integrated Prosthesis, Conical, Self-Tapping
Branemark Tissue Integrated Prosthesis, Gold Cylinder
Branemark Tissue Integrated Prosthesis, Gold Screw
Branemark Tissue Integrated Prosthesis, Guide Pin for Short Abutments
Branemark Dental Implants Single Tooth Abutment (Sterile)
Branemark Dental Implants Single Tooth Abutment (Non-Sterile)
Branemark Dental Implants Abutment Screw (Sterile)
Branemark Dental Implants Abutment Screw (Non-Sterile)
Branemark Integrated Prosthesis System, Titanium Fixtures
Branemark Integrated Prosthesis System, Titanium Cover Screw, DCA 003
Branemark Integrated Prosthesis System, Titanium Cover Screw, DCA 028
Branemark Titanium Cover Screw, Hexagon
Branemark Titanium Fixtures
Branemark Titanium Abutment Screw
Branemark Titanium Abutment
Branemark Healing Cap, Plastic
Branemark Silicone Collar
Guide Pin (Branemark System)
Gold Screw (Branemark System)
Gold Cylinder (Branemark System)
Branemark Integrated Prosthesis System: Fixtures, Cat. # SDCA 001, 002, 018, 019, 021, 022
Branemark Integrated Prosthesis System: Fixtures, Cat. # SDCA 023, 035, 036, 037, 038
Branemark Integrated Prosthesis System: Abutment Cylinder
Branemark Integrated Prosthesis System: Abutment Screw
Branemark Integrated Prosthesis System: Cover Screw, Cat. # SDCA 003, 303
Branemark Integrated Prosthesis System: Cover Screw Hexagon, Cat. # SDCA 020, 320
Branemark Integrated Prosthesis System: Space Screw, Cat. # SDCA 028
Titanium Abutments (Branemark System)
Titanium Abutments, Model SCPA 005, 006, 007 (Branemark Systems)
Titanium Abutments, Model SCPA 010, 011 (Branemark Systems)
— Notices of Compliance issued June 14, 1989
Titanium Abutments, Model SDCA 102
Titanium Abutments, Models SCPA 005, 006, 007
Titanium Abutments, Models SCPA 010, 011
— Notices of Compliance issued February 9, 1989
Branemark Dental Implant System
Abutment for Ball Attachment, Model SDCA 115, 116, 117
Branemark Dental Implant System
Overdenture Kit for Ball Attachment, Model SDCA 114
— Notices of Compliance issued October 25, 1989

Orthomatrix, Subsidiary of
LifeCore Biomedical Inc.

Steri-Oss Inc.

Sterling Drug Inc.

(Cook-Waite Laboratories Inc.
Division)

Hydroxylapatite Model HA-1000 and HA-500
— Notices of Compliance issued July 11, 1988

Steri-Oss Implant System
— Clinical Trial Status extended until the end of January, 1991

Steri-Oss HA Coated Dental Implant System
— Clinical Trial Status issued to the end of September, 1990

Alveograf — Alveolar Ridge Bone Grafting Implant Material
— Notice of Compliance issued March 8, 1985

Periograph (Durapatite Particular 40-60 Mesh) Implant
— Notice of Compliance issued July 11, 1989

Current Regulatory Status of Dental Implants in Canada

Since April 1, 1983, all new implantable devices have been subject to premarket review and must obtain a Notice of Compliance before being sold in Canada. This may be obtained by submitting to the Director, data substantiating safety and efficacy of the device.

However, from time to time some products enter the market without going through the proper regulatory process. Concerns regarding dental implants being sold in Canada had prompted the Branch to request safety and efficacy data from all those manufacturers that could be identified, in this device class.

Appendix 1 has been provided to enable the Dental Profession to be made aware of the devices that are authorized for sale in Canada as of January 18, 1990.

Individuals wanting to know the status of a new product or wanting to have a copy of the Medical Devices Regulations, may address their inquiries to the **Premarket Review Section, Premarket Division, Health Protection Branch, Health and Welfare Canada, Sir Frederick G. Banting Research Centre, Ross Avenue, Tunney's Pasture, Ottawa, Ontario, K1A 0L2**, or call (613) 954-0386. △

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Windsor	Sept. 28, 29
Toronto	Oct. 12, 13
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Saint John, N.B.	Nov. 4, 5
Montreal	Nov. 16, 17

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Note: Seminars are limited to 60 participants (including spouse) so please register early to avoid disappointment.

Comments from Past Participants

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"Enlightening and entertaining"	"Very informative, witty — well done"
Toronto	Halifax



People are talking about IMS...



"I've never been more confident in my infection control program!"

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"I know there are a lot of offices out there just like mine that are looking for a better way. I found it in IMS.

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"IMS is very reassuring to me and my staff — and my patients really notice the difference, too."

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Dental supply firm is offering unique service

At a time when infection control is such an integral part of dentistry, a subsidiary of Ash Temple Limited is providing a unique service to dental offices in Canada. Called Spor-Test, it regularly evaluates the effectiveness of steam autoclaves, chemical and dry heat sterilizers.

The autoclave testing service functions from the laboratory of Ash Temple's subsidiary company, Microbex, in suburban Toronto. The small microbiological research laboratory proudly proclaims itself "one of a kind" dedicated exclusively to meeting the needs of the dental industry.

Simple to use, the monthly testing kit consists of two small strips which are placed into the autoclave unit along with a normal load of instruments. Following the sterilizing cycle the "exposed" strips are put into an identity/dated envelope and shipped to Microbex's testing laboratory. There the strips are incubated for seven days.

If the incubation result is positive, indicative of inadequate sterilization, the laboratory immediately contacts the dental office. A discussion with the dentist seeks a solution for the potential breakdown in the chain of sterility.

Ms. Annette Clark is the laboratory technician in charge of the Spor-Test program. She indicated most positive results are caused by improper technique and not malfunctioning equipment. "Overloading an autoclave seems to be the single biggest culprit in producing positive results", stated Ms. Clark.

To participate in the program a dentist merely enters into a one year Spor-Test contract with Ash Temple. From there the process is simple; once a month the autoclave is checked and the test strips sent off by mail.

Ash Temple's Vice President, Norman Knechtel, explained, "this is not a free service; all we want from the \$149 annual contract is enough to break even. We consider Spor-Test an important service to the dental community. It's not something from which we intend to profit." △

Human Rights Commission rules

Dentists who refuse to treat AIDS, hepatitis B patients — "discriminating"

Manitoba's Human Rights Commission has ruled that the refusal to provide dental treatment to patients with hepatitis B or AIDS — is "discrimination".

In a report in the Winnipeg Free Press on March 1, last, the Commission's Executive Director Durlene Germscheid said the human rights group has no jurisdiction to ensure all dentists have proper sterilizing equipment so they won't deny treatment to infected patients.

Nevertheless she said that the ruling by the Commission makes it clear that any dentist who refuses treatment for this reason is discriminating against patients because of their ailment.

(Here we quote the article directly)

"We're saying that any dentist who refuses to provide services on this basis is contravening the Human Rights Code," Germscheid said in an interview.

The decision arose from a recent case in which a dentist denied service to a patient with hepatitis B, an infectious viral disease.

The dentist's policy was to deny treatment to those with hepatitis B because of the risk to his staff and other patients because he lacked a proper method for sterilizing equipment.

The patient, who wasn't named in the decision, complained he had been refused treatment because of his disability.

Germscheid said the commission found that safety cannot be ensured by denying treatment to those known to have hepatitis B, since most infected people don't know they're carrying the virus.

"So, in denying care to one patient with hepatitis B, the dentist may very well have been treating many others with this

or other infectious diseases," she said.

She said the commission also learned from the Canadian Dental Association and the communicable disease control branch of the provincial Health Department that safety could be ensured through use of sterilizable equipment or strong, non-corrosive disinfectants.

Both bodies suggest dental instruments be sterilized after each use, or treated with strong disinfectants.

The procedures should also be followed to prevent transmission of AIDS.

Germscheid said that when informed of these measures, the dentist in question, who also wasn't named, began using the recommended disinfectants and no longer refuses treatment to those with hepatitis B.

Policy adopted

Dr. Michael Lasko, registrar with the Manitoba Dental Association, said the ruling only serves to back up the association's policy on how to treat patients with an infectious disease.

He said that in March 1988, the Canadian Dental Association released a policy statement on the ethical and legal implications of treating patients with infectious diseases.

The policy, which was adopted by the Manitoba association, noted that if proper infection-control procedures are followed, there is no risk of transmitting the diseases in a dental office.

Lasko said dentists who don't yet have the proper equipment should not be denying treatment to infected patients outright, but should be trying to find other ways to accommodate them. △



Laboratory Technician, Annette Clark, tests Spor-Test samples from dental autoclaves.



Annette Clark and Norman Knechtel, Ash Temple's Vice President, discuss a laboratory Spor-Test result.

Bob 'Live' comes to CDA!



CDA's Bob: "Keep Smiling!"

Bob, CDA's "Keep Smiling" Dental Awareness Mascot, introduced himself to CDA Staff and Provincial representatives at a meeting of Communication Co-ordinators on February 20th at CDA Ottawa headquarters.

Displaying his ever-present smile, Bob participated in discussions on current and planned communication activities within the various provinces. The discussion agenda addressed:

- Communication to and with members
- Marketing and health promotion activities
- Dental Health Month
- Provincial/national communications

Attending the meeting chaired by Linda Teteruck, CDA's Director of Communications, were Anita Casperson, British



Bob receives an appropriate greeting from Linda Teteruck, CDA's Director of Communications.

Columbia; Carol Cronin, Manitoba; Peter James, Ontario; Clyde Covit and Jacques Richer from Quebec; Paul Downing and Ron Chafe from Nova Scotia; Mark Sarner and Cathy Beaumont of Manifest Communications, and Les Allen, Vice-President of the CDA. Resource material was supplied by the CDA Journal and Information Services staff.

Bob is more than willing to go anywhere in Canada to convey the CDA message, "Dental Health, Let's Keep It Good for Life". He particularly enjoys visits to Children's Hospital Wards, Schools, Shopping Malls and Nursing Homes. If your community would like a visit from Bob contact Linda Teteruck, CDA Ottawa. Δ



Bob poses with CDA Staff and Provincial Communications Co-ordinators at a special "Meet Bob Party" at the Ottawa Headquarters.

A Phenomenal Success Story!

The Canadian Dental Association has enjoyed one of its greatest success stories ever — communicating to the Canadian public the importance of good dental health.

In May 1989, the issues of *Chatelaine* and *Châtelaine* magazines, Colgate and the Canadian Dental Association published a four-color, 12-page insert, featuring the "Keep Smiling" and "Souriez!" themes.

88 per cent read it

Following distribution of the May issue across Canada, a survey was conducted by *Chatelaine* using a sample from that publication's Consumer Council. The Council is a nationally representative panel of more than 6,000 English and francophone women.

The results showed that of the women who read that May issue — 91 per cent recalled the "Keep Smiling" insert.

The findings among those who recalled the insert were that 88 per cent either read or looked into it. And 61 per cent pulled it out or saved it in some form.

Two out of three of these women agreed that the sponsors of the insert were doing a "wonderful job" providing much needed dental health information.

Since then, it appears that the insert has influenced a great many of *Chatelaine* and *Châtelaine*'s 2,556,000 readers — and keeps them smiling.

Chatelaine very impressed

The people at *Chatelaine* have been very impressed by this outstanding level of success and have sent out attractive posters to advertising clients and advertising agencies throughout Canada, with a prominent message about the success enjoyed by the 12-page "Keep Smiling/Souriez!" insert.

In this manner, the whole project is getting secondary high profile exposure — a major bonus — as *Chatelaine* proudly extols it as an example of effectiveness. Δ

CHATELAINE
Châtelaine

ANOTHER SUCCESS STORY!

Keep Smiling!

In the May 1989 issues of Chatelaine and Châtelaine, Colgate and the Canadian Dental Association featured a four color 12 page insert, "Keep Smiling/Souriez!"

Follow-up research was conducted by Chatelaine using a sample from the Chatelaine Consumer Council. The Council is a nationally representative panel of over 6,000 English and French women.

Of the women who read the May issue:

- **91% recalled** the insert.

Of the women who recalled the insert:

- **88% read or looked** into it.
- **61% pulled or saved** the insert in some form.



And **2 out of 3** women agreed that the sponsors of the insert were doing a wonderful job providing much needed information.

Congratulations to Colgate and the Canadian Dental Association for ANOTHER SUCCESS STORY with Chatelaine and Châtelaine—keeping our 2,556,000 readers smiling!

Supplement to the January issue of Chatelaine.



Success Criteria for Implants

A recent estimate indicates there are now 24 root-form implant systems in the market place. To make the critical choices in determining which implant systems provide an adequate prognosis to warrant their acceptance for clinical use a set of criteria for success based on scientific investigations is essential.

Each patient who receives an implant has the right to know the potential benefits and risks of the procedure as well as an accurate prediction as to useful service of the implant. The dentist should be guided in the selection of an implant system by competent review bodies. The ADA Council on Dental Materials, Instruments and Equipment suggests a report of "at least two independent clinical studies with a sample size of 50 patients each evaluated periodically over a 5 year period. . . ."

A review of the literature and the analysis of the results indicate that six criteria are supported as valid for determining the clinical success of endosseous dental implants. These (revised) criteria rest on certain conditions:—

Conditions for application of criteria:

1. Only osseointegrated implants should be evaluated with these criteria.
2. The criteria apply to individual endosseous implants.
3. At the time of testing the implants have been under functional load.
4. Implants that are beneath the mucosa and in a state of health in relation to the surrounding bone should preferably not be included in the evaluations but reported as complications.
5. Complications of an iatrogenic nature that are not attributable to a material or design should be considered separately when computing the percentage of success. This category includes such problems as impingement on the mandibular canal and intrusion into the sinus and nasal cavity.

Criteria for success:

1. The individual unattached implant is immobile when tested clinically.
2. No evidence of peri-implant radiolucency is present as assessed on an undistorted radiograph.
3. The mean vertical bone loss is less than 0.2 mm. annually after the first year of service.
4. No persistent pain, discomfort or infection is attributable to the implant.
5. The implant design does not preclude placement of a crown or prosthesis with an appearance that is satisfactory to the patient and dentist.
6. By these criteria a success rate of 85 per cent at the end of a five-year observation period and 80 per cent at the end of a 10 year period are minimum levels for success.

This set of criteria can be used as a reliable yardstick for review bodies and researchers in assessing current and newer implants. Above all, this yardstick protects the patient whose informed consent when undertaking implant therapy should include an awareness of the highest standard of services that are currently available. △

Reference

Smith, D.E., Zarb, G.A. *J Prosthet Dent* 62:567-572, 1989.

Special thanks to THE DENTALETTER,
January, 1990

Providing about 25 concise summaries in each eight page issue THE DENTALETTER keeps dentists' clinical knowledge up to the minute with only a 1/2 hour of reading per month. For subscription information contact 133 Richmond St. W., Toronto M5H 3M8, telephone (416) 869-1777.

Obituaries/Nécrologie

Dolan, R.H.: Dr. Dolan was a graduate of McGill University, Montreal, in 1954. He practised dentistry in Sunbury County, New Brunswick.

Dyment, David B.: Born in 1904, Dr. Dyment was a graduate of the Royal College of Dentistry, Toronto, in 1932. He conducted a dental practice in Toronto and was a Life Member of the Canadian Dental Association.

Guilboard, T. Ivan: Born in 1909, Dr. Guilboard was a graduate of McGill University, in 1936. He conducted a dental practice in Montreal. Dr. Guilboard was a Life Member of the Canadian Dental Association.

Hemmerich, L.H.: Born in 1929, Dr. Hemmerich was a graduate of the Faculty of Dentistry, University of Toronto, in 1953. He conducted a general dentistry practice in Kitchener, Ontario.

Hunter, H.A.: Born in 1913, Dr. Hunter graduated in dentistry from the University of Toronto in 1941. He maintained a practice in Toronto.

Lachapelle, Guy: Diplômé de l'École de médecine dentaire de l'Université de Montréal en 1946, le Dr Lachapelle exerçait sa profession à Montréal.

Rennie, George: Born in 1918, Dr. Rennie graduated from the Faculty of Dentistry, McGill University, in 1952. He practised dentistry in Ottawa. He was a Life Member of the Canadian Dental Association.

Toll, Charles E.: Born in 1898, Dr. Toll was a graduate of the Royal College of Dentists, Toronto, in 1928. He was a Life Member of the Canadian Dental Association.

The DAP Advisor

The DAP Advisor offers information, ideas and advice to improve dentist/patient communication, raise awareness about good dental health, and help your practice become busier.

Every member of dental team plays an essential role in patient communication. It is the interplay between you, your dental team and your patients that can lead to well-informed, satisfied patients, and form the basis of an enduring dentist/patient relationship.

Patient Communication: It's a Team Effort

Centuries ago, Shakespeare noted that "all the world's a stage." What he meant, of course, was that life was like a play in which everyone had a role. While it's highly unlikely that Shakespeare was thinking of the dental office when he made that observation — Elizabethan dentistry being what it was — his statement is nonetheless applicable to the modern dental team: Above and beyond their technical role, *everyone* on your dental team, plays a vital role in communicating with patients.

What follows is a brief run down of the players on your dental team and some of the communication roles they can play:

The Receptionist The receptionist actually plays many roles. She greets patients; smooths ruffled feathers when delays arise; researches information; processes forms; issues and collects bills; books appointments; recalls patients. Each of these is a crucial communications role. When done efficiently, each conveys to the patient that yours is a well-run and caring practice. In addition, the receptionist can encourage patients to read any dental health information you have on hand in your office while they wait to see you.

The Hygienist(s) Often, the patient sees the hygienist more frequently, and for a longer period of time, than he/she sees the dentist. For those patients, the hygienist rather than the dentist is likely to be the primary source of information about good dental health. The hygienist thus has the opportunity to play the role of educator and informer, discussing the components of good dental health with patients, advising them on how to achieve and maintain it, and encouraging their efforts to do so.

The Dental Assistant At first glance, the dental assistant would seem to play a smaller role in patient communication. She is, after all, unlikely to be perceived as a primary source of dental information in the dental office. And yet, through her interaction with the patient and the dentist, the dental assistant can communicate a great deal about a practice. An assistant who is at ease, helps put patients at ease, and conveys a sense of teamwork with the dentist, for example, can communicate to the patient that he/she is in the hands of capable and caring professionals.

The Dentist The dentist is the manager of the dental team and the person who sets the tone for the entire office. Like the hygienist, the dentist plays the role of educator and informer. A dentist who is committed to effective patient communication — and more important, puts it into practice — can help drive and motivate the communication efforts of the entire dental team. This commitment can help inspire patient confidence in the practice, and help build dentist/patient rapport.

This is only a general run down of the communication roles in a dental office. The members of your team may very well have more, fewer or different roles. The point is that, however these roles have been defined, patient communication is very much a team effort. And everyone on the team has something positive to contribute.

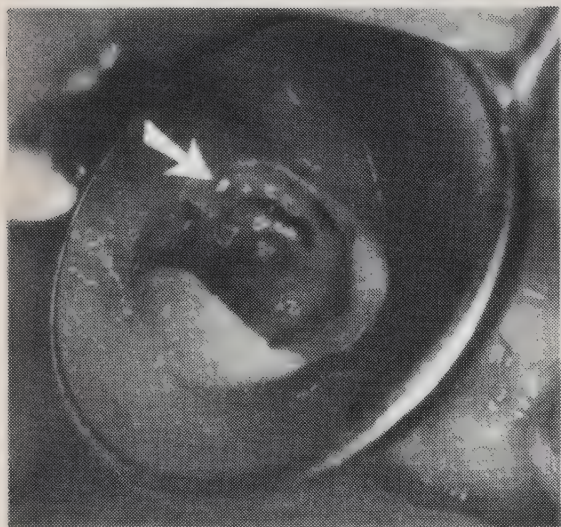
To get some idea of how effectively the members of your dental team are communicating, you might want to take a few moments and answer the following questions:

- What role does each member of the dental team play in patient communication in your practice?
- Would you say those roles are appropriate?
- Do you and your team ever discuss these roles?
- Do patients respond positively to the communication efforts of each dental team member?
- If they're not responding well, why not? Is it due to the team member's personality, appearance, way of talking or something else?
- Do you think that one or more members of your team could improve their communication efforts?
- Have you discussed how to improve patient communication efforts with your team?
- Are you doing all you can to ensure that the lines of communication are open between you and your patients?
- Is patient communication a priority in your practice?

Next Month: Patient Communication — How To

Callout: Every member of the dental team plays an essential role in patient communication. It is the interplay between you, your dental team and your patients that can lead to well-informed, satisfied patients, and form the basis of an enduring dentist/patient relationship.

Adhesive breakthrough bonds amalgam to dentin...to enamel...even to old amalgams



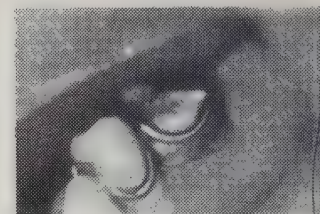
Case 41 - Before: Old pin-retained amalgam failed when pin broke at the cavo-restoration junction. (Arrow shows broken pin still in dentin).



Case 41 - After: New MODB bonded to remaining tooth without pins.



Case 23-Fractured lingual wall-New amalgam bonded to old filling and dentin.



Case 56-Amalgam onlay-Occlusal surface bonded to non-retentive preparation without pins. Strong enough to serve as RPD abutment.

Now in seconds, you can dentin-bond your favorite brand of amalgam to eliminate pins, reduce cavity preparation, seal margins ... (and that's just the beginning.)

Doctor:

Amalgambond™ is a revolutionary 4-META-based adhesive system that lets you do things with amalgam you've never been able to do before. In fact, once you start using Amalgambond, you may never think of amalgam the same way again.

For example ...

Eliminate pins - Avoid pulpal exposure! - If you're like me, you hate placing retentive pins. They're hard to handle. They're time-consuming. But most important, they damage the remaining tooth structure. Researchers at the University of North Carolina found that dentistry's most popular brand of regular-size pins caused microscopic cracking severe enough to reach the pulp **73% of the time!!**

When you bond amalgam to the tooth you skip pins entirely.

More conservative preparations - I'm not quite ready to suggest totally non-retentive preparations yet. (Though that may be coming. I'll keep you posted.) But with Amalgambond I've already eliminated the sharp line angles that sacrifice healthy dentin in the name of "retention".

Reduced marginal leakage - New Amalgambond seals the entire preparation with a microscopic film about 5 microns thick. But it's not just *sealed* ... it's *bonded*. The occlusal margin actually unites with the enamel, so there's less chance of ditching. The amalgam becomes one with the floor and axial walls to resist percolation, discoloration, hypersensitivity and secondary caries.

Almost unbelievable repairs - Amalgambond's 4-META molecule grafts both to tooth structure *and* to old amalgam in existing restorations. Because of this, you can make virtually-impossible repairs. If a lingual wall breaks away from an old MOD, you can build an MODL in minutes. After painting the surfaces with Amalgambond, you just rebuild the broken tooth structure using fresh amalgam. No pins. No need to remove the old amalgam.

A low-cost alternative to cast crowns - I'm not recommending amalgam as a general replacement for cast crowns. Not even *with* Amalgambond. But when economic considerations prevent conventional cast restorations, a bonded amalgam can often save a severely compromised tooth you might otherwise be forced to extract.

Apply instead of varnish - Prepare the cavity. Paint the surface (both dentin and enamel) with Amalgambond Activator (supplied with kit) to remove the smear layer. After 10-30 seconds wash it off. Dry the tooth and brush-on the special Adhesive Agent.

Then simply mix the Amalgambond base and catalyst and paint the preparation. That's all there is to it. You're ready to pack amalgam immediately.

Now use a single adhesive system to give your patients exceptional composite bonds and strong amalgam bonds

Despite its name, Amalgambond also creates terrific dentin/composite bonds. In University tests Amalgambond showed adhesion 2000psi to dentin, about the same as Scotchbond II®.

And because it's a 4-META-based system, research suggests that Amalgambond is less likely to degrade than conventional dentin adhesives.

Try Amalgambond on your *most impossible* application. If you are not satisfied with the results, just call us within 30 days. We'll have UPS pick the material up, and we'll give you a full refund or credit.

Nelson

Nelson J. Gendusa, D.D.
Director of Research

■ **New Amalgambond Adhesive System (stock No. S370SM): \$29.95 complete** with Dentin/Enamel Activator, Adhesive Agent and sealant. Cure Amalgambond (base and catalyst).

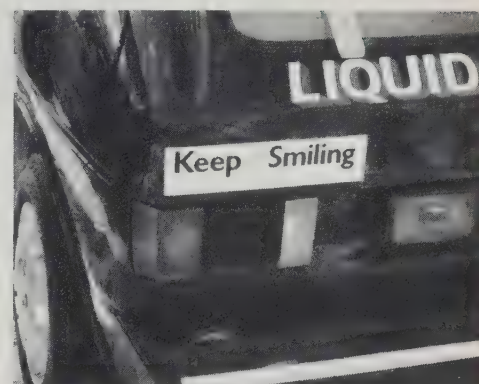
¹Leland Webb, et al. Tooth crazing associated with threaded pins: A 3-dimensional model. J. Prosthet Dent. 61:5, p624-626, 5/89.

4-META Patent No. 4,143,511

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CDA Dental Awareness Program Just Keeps on Winning!



"Keep Smiling" bumper stickers have been popping up in a great variety of locations and events across Canada. One of those locations was near Thunder Bay, Ontario, and the event was ice racing. The photo on the left shows some of the action in the Thunder Bay Auto Sport Modified GTU Studded Class feature race. Pino Mercuri's Volkswagen Rabbit took the checkered flag. Pino is seen at the left, in the centre photo, with his winning vehicle. Rick Mercuri is standing, right, behind Warren Kettering. Pino came from behind to win, and his CDA bumper sticker encouraged all drivers who ended up behind him to "Keep Smiling" — see close-up, right photo.

Dr. Ken Sutherland, Head, Department of Restorative and Prosthetic Dentistry, College of Dentistry, University of Saskatchewan was recently installed as **President of the Association of Prosthodontics of Canada** at the annual meeting held in Toronto.



Dr. Ken Sutherland, DMD, MS

The Past-President is Dr. Michael MacEntee of Vancouver, British Columbia. The President-Elect is Dr. Bruce Graham of Halifax, Nova Scotia, the Vice-President is Dr. Lawrence St. Pierre of Barrie, Ontario and the Secretary Treasurer is Dr. Brian Kucey of Edmonton, Alberta.

Dr. Sutherland is a graduate of McGill University (BSc 1969), the University

of Saskatchewan (DMD, 1977) and the University of North Carolina at Chapel Hill (MS, 1980). He has been a full time faculty member at the University of Saskatchewan since 1980. He is an associate member of the University Hospital Dental Department. He maintains an active part-time practice in prosthodontics. △

At the 106th Annual Meeting of the Manitoba Dental Association, Dr. Marshall Peikoff was installed as President.

Dr. Peikoff, an internationally renowned clinician, is a graduate of the University of Manitoba's Faculty of Dentistry and received his Certificate in Endodontics from the University of Boston.

He has served as an executive member of the Royal College of Dentists of Canada, is a past president of the Canadian Academy of Endodontics and a Trustee of the Endowment Foundation, the American Association of Endodontists. He was formerly Head of the Department of Endodontics at the University of Manitoba Faculty of Dentistry.

Others who are now serving on the Manitoba Dental Association Board are: Dr. Tom Breneman, of Brandon, Vice-President; Dr. Marty Dveris, of Winnipeg, Past President; Dr. Jan Brown, of Winnipeg; Dr. Mark Buettner, also of Winnipeg; Mrs. Gail Kauk, Auxiliaries Appointee; Mr. Roy Low, Ministry of Health Appointee; Dr. Ron Monczka, of The Pas, and Dr. Heinz Scherle, of Selkirk. △



Dr. Marshall Peikoff

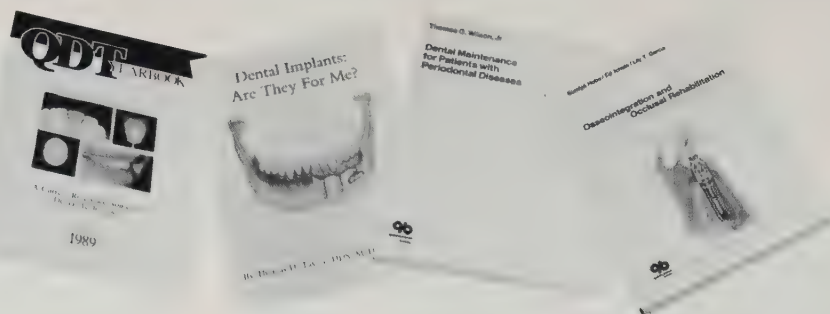
Scientists at the University of Southern California have discovered the location on human chromosomes of a gene that tells cells to manufacture the principal ingredient of tooth enamel — the protein amelogenin, according to a report in Dental Economics.

This finding is expected to help scientists identify the defective amelogenin genes responsible for a hereditary tooth enamel weakness called Amelogenesis imperfecta. The discovery of the location of this gene also may lead to clues about early detection and treatment of hereditary bone defects.

A research team at USC, with funding from a National Institutes of Health grant, has focussed on the molecular genetics of dental tissue to understand how gene products participate in dental tissue formation.

(ADA Update July/August 1989) △

NEW QUINTESSENCE BOOKS



- ☐ **Wilson**
Dental Maintenance for Patients with Periodontal Diseases
Much-needed guide on how to improve patient compliance. Shows how to *successfully* maintain dental health in patients who have periodontal diseases. Describes care in other areas of dentistry and how they interrelate with periodontics. 224 pp; 345 illus (132 in color); \$64
- ☐ **Hobo/Ichida/Garcia**
Osseointegration and Occlusal Rehabilitation
Part I: techniques for successful osseointegration treatment modalities, including practical cases. Part II: occlusion as it relates to implant therapy. 478 pp; 1,077 color illus; \$146
- ☐ **van der Linden**
Problems and Procedures in Dentofacial Orthopedics
Practical advice on complex clinical situations frequently encountered in dental practice: discrepancies in tooth position, occlusion, and jaw relationships that often occur in combination *and* with other disturbances. Approx: 340 pp; 624 illus; \$68
- ☐ **Hegenbarth**
Creative Ceramic Color: A Practical System
Teaches how to fabricate lifelike ceramic restorations. A catalog of tooth types, handy collection of shade formulations, and training guide—all in one! 110 pp; 198 color illus; \$58
- ☐ **Taylor**
Dental Implants: Are They For Me?
Booklet for patients that easily explains what implants are, how they are placed in the mouth, and how to care for them. Comes with a special handout for the patient on detailed cleaning techniques. 66 pp; 44 color illus; \$24
- ☐ **Albrektsson/Zarb (eds)**
The Brånemark Osseointegrated Implant
International leaders in osseointegration give updates on their research into the Brånemark implant. 263 pp; 357 illus (237 in color); \$128
- ☐ **Mongini/Schmid**
Craniomandibular and TMJ Orthopedics
Text and case histories detail approaches to problems in gnath-orthopedics that ensue from occlusion, TMJ function, and craniofacial musculature. 208 pp; 491 illus; \$54
- ☐ **Gerber/Steinhardt**
Dental Occlusion and the Temporomandibular Joint
Occlusally determined TMJ or facial pain and disturbances in masticatory function are explored. 145 pp; 198 illus (96 in color); \$68
- ☐ **Müterthies**
Esthetic Approach to Metal Ceramic Restorations for the Mandibular Anterior Region
Step-by-step approach to fabricating esthetic metal ceramic restorations. Approx: 96 pp; 149 illus; \$48
- ☐ **Renner (ed)**
QDT Yearbook 1989
One excellent source of the latest techniques in dental technology. 198 pp; 243 color illus; \$44
- ☐ **Croser/Chipping**
Cross Infection Control in General Dental Practice
Written for the entire dental team. Clearly sets forth guidelines on determining and implementing procedures to control cross infection in the dental office. 128 pp; 25 illus; \$32
- ☐ **Martignoni/Schönenberger**
Precision Fixed Prosthodontics: Clinical and Laboratory Aspects
Comprehensive text on techniques for fabricating precise crown-and-bridgework. Provides a method of standardizing the clinical process; gives detailed laboratory procedures. 580 pp; 1,384 illus (most in color); \$178
- ☐ **Rinn**
The Polychromatic Layering Technique
How-to book describes use of the polychromatic layering technique for ceramic and acrylic resin veneer work. Approx: 160 pp; 392 illus; \$78
- ☐ **Trowbridge/Emling**
Inflammation: A Review of the Process, 3rd ed
Self-study program with direct language, simple illustrations, and quick review sections. Fundamental understanding for students; will update knowledge of practitioners. 166 pp; 64 illus; \$28

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Recalls and Scheduling

Rappels et programmes de traitements

1. Anderson, P.E. "Dentist makes changes as a result of feedback." *Dental Economics*. Apr. 1983, pp. 78-83.
2. Ault, G.L. "A new recall system raised one dentist's consciousness — and his annual gross, by 23.7 per cent." *Dental Management*. December 1980, pp. 19-20.
3. Barnett, J.W. "The gift of time." *Journal of Clinical Orthodontics*. April 1983, v. 17(4) pp. 253-264.
4. Bers, G. and Dana, A.H. "Appointment control systems I." *Quintessence International*. Feb. 1981, pp. 217-220.
5. Bers, G.S. and Dana, A.H. "Appointment control systems II." *Quintessence International*. Mar. 1981, pp. 323-326.
6. Blau, M.A. "Appointment scheduling." *Journal of Clinical Orthodontics*. September 1984, v. 17(9), pp. 642-47.
7. Busch, A.M. and Gish, C.W. "Your community: the Appointment book filler." *Journal of the Indiana Dental Association*. Nov./Dec. 1986, pp. 25-26.
8. Caplan, C.M. "A permanent cure for broken appointments." *Dental Management*. July 1983, pp. 38-42.
9. Clark, J.L. "A choked appointment book can cost you money." *Dental Management*. Aug. 1981, pp. 23-25.
10. Cross, G.P. "Your recall system: A basic marketing technique." *Journal of the Oregon Dental Association*. Winter 1982, pp. 30-31.
11. DAP Advisor. "Dental practice busyness: results of a recent survey." *Journal of the Canadian Dental Association*. Sept. 1989, pp. 682.
12. Ehrlich, A. "Improve your recall ratio." *Dental Economics*. July 1983, pp. 43-45.
13. Ehrlich, A. "Scheduling update." *Dental Economics*. Oct. 1983, pp. 50-53.
14. Happel, V.M. "Successful dental office management." *Cal.* Nov. 1986, pp. 22-3, 25.
15. Hartley, L.S. "A flexible appointment control system for the dental office." *Quintessence International*. Oct. 1983, pp. 1041-47.

16. Miles, L. "The phone call that gets dental dropouts back on your appointment book." *Dental Management*. Jan. 1984, pp. 36-37.
17. Miller, V.B. "How to do the dentistry that's hiding in your recall system." *Dental Management*. Jun. 1983, pp. 54-55.
18. Nevin, J.J. "Twelve ways to increase your recall appointments." *Cal.* Feb. 1986, pp. 8-9, 15.
19. Nuttall, N.M. "Recall strategies reported to be used by general dental practitioners in Scotland." *British Dental Journal*. July 23, 1989, pp. 47-50.
20. Orchard, N.N. "Strategic scheduling for productivity." *Dental Management*. Apr. 1983, pp. 52-53.
21. Wilkinson, M.D. "Appointment systems." *British Dental Journal*. Jun. 19, 1989, pp. 420-22.
22. Woolgrove, J. "Increasing dental attendance by using personalized reminders." *Community Dental Health*. Mar. 1988, pp. 389-93.

New Library Acquisitions

- Galloway, Arlene. *The smoke-free guide: how to eliminate tobacco smoke from your environment*. Victoria, BC: Qualy Publishing, 1988.
- Kandelman, Daniel. *La dentisterie préventive*. Paris: Masson, 1989.
- Langland, Olaf E. et al. . . . *Panoramic radiology*. Philadelphia: Lea & Febiger, 1989.
- Wilson, Thomas G. Jr. *Dental maintenance for patients with periodontal diseases*. Chicago: Quintessence, 1989. Δ

One copy of the above package of articles is available for \$5.00 to all CDA members and for \$10.00 to non-members. (Ontario residents, please include 8% sales tax.)

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As a convenience to all CDA members in the various time zones in Canada, it is now possible to call the CDA Library, between 4:30 pm and 8:30 am Ottawa time, in addition to regular library hours (8:30-4:30 EST)

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*Please Note: **DOMS** will **NOT** be present at the Journées dentaires in Quebec as previously published in the April issue of the CDA Journal



FACE FACTS...

Orolabial herpes can be more than just a "cold sore."

Recurrent herpetic lesions of the lip and mouth are of immediate medical concern in immunocompromised patients with nonlife-threatening cutaneous herpes infections, and can be the cause of long-term psychosocial problems.

These individuals can greatly benefit from prompt recognition and therapy with

ZOVIRAX Ointment 5% ...to stop viral replication, speed healing, and reduce the severity of accompanying pain.¹

The efficacy of ZOVIRAX is enhanced by prompt administration. So be sure to prescribe enough this time, so it's available for patients to use at the earliest onset of symptoms next time.

Now when faced with orolabial herpes... there's ZOVIRAX.

(acyclovir)

ZOVIRAX
OINTMENT 5%
(4 g and 15 g tubes)

Effective Suppression of Viral Expression

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A COLOR ATLAS OF RESIN BOND RETAINED PROSTHESES

by R.T. Walker, A. Derimer,
P.R.H. Newsome and
S.K. Ngoi

1989, Excerpta Medica Asia Ltd.,
Hong Kong, 81 pages, colour photographs,
\$40.00

This extremely well illustrated Atlas covers the subject of resin bond retained prostheses by using minimal written descriptions to accompany the numerous illustrations and clinical photographs. A brief discussion of the development of resin bonded prostheses begins with Rochettes' design and includes various framework designs, retention mechanisms and cements up to and including the luting agents introduced in the past year. Clinical examples are effectively used to demonstrate diagnosis and treatment planning and a very reasonable and conservative approach to the indications and contraindications of these procedures is presented.

The tooth preparation described emphasizes long guide planes and wrap-around form to maximize retention. Rests are suggested but their preparation is not shown or described and several of the frameworks shown have less than ideal coverage. Margins are described as well defined but their actual form and the method for producing them is not discussed.

The various framework designs and laboratory procedures are shown in detail as are the procedures to be performed at a try-in appointment. The method used to electrolytically etch the metal is shown but no other type of etching or retentive mechanism is mentioned. A thorough description of the required cementation procedure is given including the mandatory use of rubber dam and a maintenance program is suggested. A series of case reports and a listing of alloys are included as appendices.

This book is not research based but the clinical techniques and suggestions shown are based on the literature and the experience of the authors. The book is extremely easy to read and the treatment planning, and technical procedure sections are excellent. Although it is not an all inclusive presentation of the subject,

the book would make a valuable addition to any clinicians library. Δ

This book was reviewed by:
Dr. Jack Gerrow
Head, Division of Removable Prosthodontics
Dalhousie University

INFECTION CONTROL IN THE DENTAL ENVIRONMENT

1989, American Dental Association
3 videos and binder, \$75.00 US

This new teaching aid is the result of a collaboration by three United States organizations, namely the Department of Veterans Affairs, the American Dental Association, and the Department of Health and Human Services. There were two reasons for its production. One, to comply with the Occupational Safety and Health Administration's demands regarding infection control in health care settings. Two, to provide dental health care workers with the knowledge to practise effective infection control. Fortunately, Canada does not have a national organization which enforces standards for infection control. This is the responsibility of each health care profession. It is for this reason that the aid is worthy of review.

The educational program consists of a three-ringed binder containing a 62 page manual, a 61 page appendix, and three VHS format videotapes. The manual is divided into three learning units. The first deals with the 'Principles and Fundamentals of Infection Control'; the second unit is concerned with 'Clinical Procedures'; while the third describes 'Sterilization and Disinfection'. Each unit ends with a summary, review questions, and a goal-setting worksheet. A continuing education examination is included. It may be completed and forwarded for grading. The videotapes correspond to the three units. They employ simulated office procedures and computer graphics to illustrate the text. The appendices consist of reprints of pertinent articles previously published in the Journal of the American Dental Association, and Morbidity and Mortality Weekly Reports.

The manual contains some minor grammatical errors, and a frequent distribution of the personal pronoun 'you' which this reviewer finds annoying. The units contain no information which cannot be gleaned from previous publications. In Unit One, a more thorough discussion

on how diseases are transmitted and the difference between exposure and infection would impart basic knowledge, which combined with common sense is the foundation of an effective infection control program. Unit Two is a repetition of Unit One albeit in a clinical setting. The division of infection control procedures into pretreatment, chairside, and post-treatment is a worthwhile suggestion. Although Unit Three repeats much of what has previously been published regarding sterilization and disinfection, the separation of disinfectants into three classes combined with the recognition that useful disinfectants should destroy *Mycobacterium tuberculosis variety bovis* are steps towards standards for this diverse group of chemicals. The videotapes provide no information that is not in the text. Their inclusion may have been to satisfy the current demands for this form of communication. The culturing and reading of biologic monitors lends itself to the visual medium. Unfortunately, this opportunity has been ignored. The combined running time of the tapes is not excessive at 57 minutes. One tape suitably edited may have sufficed, while reducing packaging costs. The appendices although relevant to the subject are available from other sources without incurring the purchase price of the program.

Perhaps, in retrospect, it was unwise to anticipate that this program would be innovative or satisfy the praises contained in the news releases announcing its arrival. It simply represents a compilation of previously published material contained in an impressive, expensive package.

As such, it is a useful resource, but it has little to offer those knowledgeable in the subject and may confuse the neophyte. Although simple, the review questions may help to clarify some issues, and the goal-setting worksheets will appeal to those who require this form of stimulation. The program costs approximately, \$100.00 US. Such a purchase would be an expensive method of discovering that much of the same material was contained in the supplement 'Recommendations for Infection Control Procedures' published in the April 1989 edition of the Journal of the Canadian Dental Association. Δ

This was reviewed by:
John Hardie, BDS, MSc, FRCD(C)
Chief, Department of Dentistry
Ottawa Civic Hospital



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Ottawa 1990: Convention Countdown

R_x : Two Conventions a Year



Just the other day, I was talking on the telephone with a well-established dentist who runs a large and busy quality practice in Oakville. It was 5 p.m. and he sounded surprisingly upbeat and in good humour after a full day's work. Naturally, I inquired as to how his day had been.

"Great!" he responded without hesitation. "I had no cancellations, all the patients showed up on time, I was right on schedule

all day, all the crowns and bridges to be cemented, fit perfectly and there were no bugs in the computer system," he said, adding, "I must be doing SOMETHING right."

"Wow," I responded and added jokingly, "You must have attended the last CDA Convention!"

He confessed he hadn't.

Well of course, as we all know, there are other ways of keeping informed and up-to-date in the dental profession. You can read the numerous journals and books on the market, attend the numerous lectures that are offered or invest in in-office consultations. But let's face it, nothing can compare to the enjoyment and excitement one gets from learning at a convention with the rest of the team.

There are at least two important conventions happening this month in Canada. Both Les Journées Dentaires and the Ontario Dental Association offer dental convention goers excellent scientific programs and exhibits. Other provinces also offer top quality meetings.

Dentists with busy and successful practices know that the days of going to the office and just letting things happen are over. They have taken control and used their initiative to *make* things happen.

By increasing one's knowledge and creating enthusiasm in the office, one can become more successful. Attending conventions can, and does, help make it happen. New technologies, innovative ideas, and opportunities to renew basic skills and training are at your fingertips at any convention. So GO FOR IT! **Attending two conventions annually could make the difference in your practice.** Of course one of them IS the CDA Convention.

The April and May issues of the CDA Journal contain updated information on the numerous programs being offered during the 1990 CDA Convention. Please share it with your staff, spouse, and children and make plans to attend NOW to avoid disappointment.

*Michel Jahjah, D.D.S.
General Chairman
CDA Conventions*

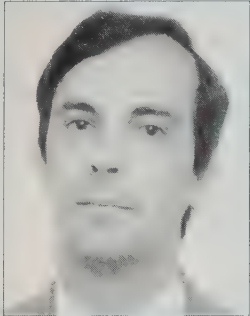


Ottawa: site of the 1990 CDA Convention.
(Industry, Science and Technology Canada photo)

Ottawa 1990

1990 Pre-Convention Program Highlights

Five Super Courses!



Torsten Jemt, D.D.S., PhD.

Associate Head of Branemark Clinic
Gothenburg, Sweden

"Training Course on Osseointegrated Implants"

Hands-On

This course is designed to give prosthodontists and general practitioners knowledge about the prosthetic procedures of the Branemark System.

Topics to be addressed will include:

- Introduction and review of clinical and physiological problems associated with edentulism and partial edentulism.
- Presentation of conventional treatment concepts including comments on other implant systems.
- Review of the scientific background of the Branemark system including biological considerations, biomechanical aspects and technical engineering aspects.
- Brief overview of surgical procedures and presentation of surgical aspects of significance for prosthetic rehabilitation.
- Prosthetic treatment planning, patient selection, indications and contraindications.
- A detailed presentation of prosthetic, clinical and technical aspects covering various techniques and the use of different materials.
- Hands-on training that includes presentation of components, instruments and the different steps involved in the clinical treatment sequence.
- Presentation of patients in various stages of treatment including completed patients.
- Discussion of possible complications and how to handle them.
- Discussion of patient control and maintenance program including radiographical technique and computer possibilities in long term patient follow-up.

11-hour Course

Saturday – Full-day Lecture

Sunday – Hands-on

Enrolment limited to 40



Irvin A. Roseman, D.D.S.

Wilmington, North Carolina

"Endodontics for the 1990's"

Hands-On

This seminar will bring to the practitioner the principles necessary to perform predictable and effective endodontic therapy. Through step-by-step procedures, illustrations and case presentations which will encompass all current concepts in root canal therapy, the participants will easily be able to incorporate these techniques profitably and efficiently into their practice.

The course will include lectures to cover theoretical points on

- Diagnosis
- Instrument Length
- Instrumentation Complete
- Mast Cone Placement & Completion
- Follow-up
- Post & Core
- Trauma
- Bleaching & Restoring Endo Teeth

The hands-on participation will cover Molar Endodontics. Participants will have the opportunity to cleanse, shape and obturate canals using simulated tooth models. They will also be introduced to the use of the Endotec - a new technique-sensitive procedure.

Class size will be limited to 40 so each participant can be assured of individual attention and to maximize the learning experience.

**All courses complete to allow you to apply what you learn
the moment you return to your office!**

Ottawa 1990

1990 Pre-Convention Program Highlights

Five Super Courses!



Dick Barnes, D.D.S.

Alpine, Utah

"Building a More Successful Practice"

Some of the topics that will be emphasized during the program are:

- Lowering stress and increasing satisfaction with dentistry as a profession.
- Staying in control of your practice by recognizing and supporting the responsibilities of your staff.
- Controlling your appointment book for maximum production. How to not be just busy, but busy and profitable.
- How to comfortably convince your patients to have the dentistry they need.
- Understanding patient behaviour, or what to say to "I'll think it over" patients.
- The pros and cons of dental advertising.
- Increase new patient flow despite increased competition.
- The art of case presentation - a step-by-step procedure for achieving acceptance of treatment each and every time.
- Financial arrangements you and your patient can live with.
- How to establish appropriate fees - and get them.
- How to double production with existing patients.



William Strupp, D.D.S.

Clearwater, Florida

"Predictable Anterior Crown and Bridge"

Clinical techniques leading to excellent and predictable esthetic results in anterior crown and bridge dentistry.

Topics covered during this pre-convention course will include:

- Tooth Preparations
- Tissue Management in Critical Cosmetic Zones
- Impression Procedures - How to NEVER Miss
- Total Hemorrhage Control
- Provisional Restorations by Staff with Perfect Fit/Function/Esthetics
- Materials/Equipment/Supplies Necessary to Do a First Class Job
- Soft Tissue Models for Soft Tissue Success
- Transmitting Esthetic Information to the Laboratory



Imtiaz Manji, B.Sc.

Vancouver, B.C.

"The First Step to High Tech"

Hands-On

Each participant will begin the seminar with an unassembled computer in front of them. Working from the ground up, Mr. Manji will explain computer technology in straight-forward, non-technical terms and guide the participant through assembly of their own computer.

Once the computers have been assembled, they will be powered up and Mr. Manji will continue his discussion about popular computer programs and dental practice management software.

As a participant, you will have an opportunity to see each of the programs discussed - from MS-DOS and Lotus 1-2-3 to sophisticated dental software with which you can record patient information and bill dental procedures. The seminar is assisted by five experienced computer users so everyone will have plenty of opportunity to get their questions answered.

4-hour Presentation

Enrolment limited to 20

**All courses complete to allow you to apply what you learn
the moment you return to your office!**

Ottawa 1990

Preliminary Convention Program

MONDAY, AUGUST 27TH

Allen Kincheloe, D.D.S.

Houston, Texas

"Esthetics for the 1990's"

CANADIAN FORCES DENTAL SERVICES
75TH ANNIVERSARY

Murray Cuff, D.D.S., M.R.C.D.(C)

Edmonton, Alberta

"Dental Management of the Medically Compromised Patient"

Tom Harle, D.D.S., DIP (Prosth)

Toronto, Ontario

"Osseointegration: Clinical Aspects"

Paul Demers, D.D.S., M.Sc.

Halifax, Nova Scotia

"Management of Oral and Maxillofacial Infections"

Mark Matthews, D.D.S.

Halifax, Nova Scotia

"Surgical Correction of Dentofacial Deformities"

Vanik Jinoian, M.D.T.

Bad Sackingen, West Germany

"A New Generation of Ceramic for Esthetic All-Porcelain Bridges"

Norman Levine, D.D.S., M.Sc.D., F.R.C.D.(C)

Toronto, Ontario

"Dentistry for the Disabled"

Franklin Weine, D.D.S., M.S.D.

Chicago, Illinois

"What's New in Endodontics"

Ronald Feinman, D.M.D.

Atlanta, Georgia

"Porcelain Laminates - A Seven Year Update"

"Chemical Alterations of Enamel Color - The Bleaching Boom"

Tom Limoli, D.D.S.

Atlanta, Georgia

"Periodontal Problems with Prepayment"

GRIEVE MEMORIAL LECTURE

Jack Dale, D.D.S., F.R.C.D.(C)

Toronto, Ontario

"Extractions in Orthodontics: A Controversy of 100 Years"

Maureen Locherer, P.D.A.

Ottawa, Ontario

"Equipment Maintenance"

MONDAY, AUGUST 27TH

Marion Balla, M.Ed., M.S.W.

Ottawa, Ontario

"Effective Communication with Staff & Clients"

John Hardie, B.D.S., M.Sc., F.R.C.D.(C)

Ottawa, Ontario

"An Update on Infection Control"

Lendon Smith, M.D.

Portland, Oregon

"Humour as a Healer"

"Nutrition to Control Stress"

TUESDAY, AUGUST 28TH

Stéphane Schwartz, D.D.S., M.S.D.

Montreal, Quebec

"Diagnosis & Treatment of Luxated Young Permanent Incisors"

Matthias Hourigan, D.D.S.

Kansas City, Missouri

"Camera Clinic for Slide Shooters"

ROYAL COLLEGE OF DENTISTS

Dennis Nimchuk, D.D.S., M.R.C.D.(C)

Vancouver, British Columbia

"Prosthodontics"

David Precious, D.D.S., M.Sc., F.R.C.D.(C)

Halifax, Nova Scotia

"Oral Surgery"

David Flam, D.D.S.

Montreal, Quebec

"Orthodontics"

UNIVERSITY OF TORONTO SPEAKERS

Franklin Weine, D.D.S., M.S.D.

Chicago, Illinois

"Preparation of Curved Canals"

Dianne Rekow, M.S.M.E., D.D.S., Ph.D.

Minneapolis, Minnesota

"CAD/CAM Systems - The Technology"

William Bottomley, D.D.S., M.S.

Stomac, Maryland

"An Update on the Drugs Your Patients Take"

Tom Limoli, D.D.S.

Atlanta, Georgia

"Overview of Third Party Dental Care"

Ottawa 1990

Preliminary Convention Program

TUESDAY (continued)

Annette Ashley Linder, R.D.H., B.S.
 Richmond, Virginia
"Implementing Soft Tissue Management"

CFDE LECTURE
Mike Duffy
 Ottawa, Ontario
"Ottawa From the Inside"

Glen McGivney, D.D.S.
 Buffalo, New York
"Common Complete Denture Problems: Causes & Solutions"

Imtiaz Manji, B.Sc.
 Vancouver, British Columbia
"High Tech Productivity and Practice Management"

TABLE CLINICS

Ralph Phillips, M.S., D.Sc.
 Indianapolis, Indiana
"Dental Materials I & II"

Marion Balla, M.Ed., M.S.W.
 Ottawa, Ontario
"Stress Management in Personal Relationships"

Joseph Chasteen, D.D.S., M.A.
 Seattle, Washington
"The Joy of Four-Handed Dentistry"

Maureen Locherer, P.D.A.
 Ottawa, Ontario
"Sterilization Techniques & Infection Control"

WEDNESDAY (continued)

Glen McGivney, D.D.S.
 Buffalo, New York
"A Systematic Approach to Treating the Partially Edentulous Patient"

Joseph Chasteen, D.D.S., M.A.
 Seattle, Washington
"Selecting Compatible Members of a Dental Team"

FRENCH PROGRAM

MONDAY, AUGUST 27TH

Léon Lemian, D.D.S., M.S.D., M.R.C.D.(C)
 Montréal, Québec
"Endodontics: What's New"

Stéphane Schwartz, D.D.S., M.S.D.
 Montréal, Québec
"Treatment of the Primary Dentition"

Monique Michaud, D.D.S. M.S.D.
 Montréal, Québec
"Oral Lesions: What's New"

TUESDAY, AUGUST 28TH

Huan Pham, D.D.S., M.S.
 Montréal, Québec
"How to Prevent and Treat Complications in Oral Surgery"

Jacinthe Larivée, D.M.D., M.R.C.D.(C)
 Montréal, Québec
"Standards of Excellence in Clinical Periodontology"

WEDNESDAY, AUGUST 29TH (AM ONLY)

Matthias Hourigan, D.D.S.
 Kansas City, Missouri
"A Bread & Butter Office Oral Surgery Review"

William Bottomley, D.D.S., M.S.
 Potomac, Maryland
"Treatment of Oral Lesions"

Harry Rosen, D.D.S., M.R.C.D.(C)
 Montreal, Quebec
"Solving Problems Associated with Long Term Perio-Prosthesis Patients"

Dianne Rekow, M.S.M.E., D.D.S., Ph.D.
 Minneapolis, Minnesota
"CAD/CAM Systems: Challenges & Possibilities"

CDA's Fun Run

Monday, August 27

Look for further details in
 upcoming issues of the CDA Journal



Ottawa 1990

Highlights of the 1990 Convention Program

Monday, August 27th

Vanik Jinoian, M.D.T.

Bad Sackingen, West Germany

"A New Generation of Ceramic for Esthetic All-Porcelain Bridges"

This lecture will be on IN-CERAM, a dimensionally stable alumina core.

Topics will include: a review of the strongest and most accurate porcelain system on the market today that is installed without the use of a metal structure; ideal esthetic and strong porcelain bridges.

Lendon Smith, M.D.

Portland, Oregon

"Humour as a Healer"

Laughter has been considered a form of therapy since cave-man days. A good self-image and the ability to laugh are the most important things to have in life.

Topics will include: the ancient Greeks approach to health; the physical results of laughter; endorphins - the body's own morphine-drug; nutrient deficiency.



White Water Rafting on the Ottawa River.

(Canada's Capital Visitor and Convention Bureau photo)

Tuesday, August 28th

Joseph Chasteen, D.D.S., M.A.

Seattle, Washington

"The Joy of Four-Handed Dentistry"

A review presentation of the fundamentals of the four-handed dentistry concept. The course contains a potpourri of ideas for the dental team to implement within the scope of effective chairside technique.

Topics will include: positioning the patient and the operating team; gaining access and visibility; instrument management systems and instrument and material transfer techniques.

Ottawa 1990

Highlights of the 1990 Convention Program

Tuesday, August 28th (continued)

Matthias Hourigan, D.D.S.

Kansas City, Missouri

"Camera Clinic for Slide Shooters"

This fun clinic is a down-to-earth "how to do it" presentation that will prove to the inexperienced photographer how the 1990 modern camera can take at least 95% error-free pictures with little effort and minimal photo background.

Topics will include: selecting and using SLR models; simple explanations of camera controls with automatic, program auto-auto and electro-optical systems; tips on the best films, filters and flashes; the six rules of composition; how to take quality intraoral and extraoral pictures; how to shoot instruments, models, x-rays; making drawings and titles and doing your own copy work; constructing an educational slide program; examples of internal and external marketing in a dental practice and helpful hints.

Stéphane Schwartz, D.D.S., M.S.D.

Montreal, Quebec

"Diagnosis and Treatment of Luxated Young Permanent Incisors"

The classification and treatment of luxative injuries will be reviewed. Selected cases in each category will be presented as well as the success or the failure of the respective treatments. A special effort will be made to justify early intervention.

Topics will include: reducing luxation; calculating chances for pulpal survival; determining the severity of displacement; complications which may arise if intervention is delayed; avoiding complications while intervening.

Annette Ashley Linder, R.D.H., B.S.

Richmond, Virginia

"Implementing Soft Tissue Management"

Managing the periodontally compromised patient. A clearly defined, cooperative approach to early identification and treatment of the disease that affects 85% of the population.

Topics will include: update of non-surgical therapies, patient assessment, case management, achieving 95% case acceptance, positive and legal documentation, enhanced scheduling, and maintenance and recall systems.



Dow's Lake Pavilion, Ottawa.

(Canada's Capital Visitor and Convention Bureau photo)

Ottawa 1990

Highlights of the 1990 Convention Program

Wednesday, August 29th

Harry Rosen, D.D.S., M.R.C.D.(C)

Montreal, Quebec

"Solving Problems Associated with Long Term Perio-Prosthesis Patients"

The increasing number of aging and medically compromised patients are becoming the major consumers in a restorative or perio-prosthodontic practice. Rationale and techniques need some creative modification to provide quality care as it applies to both treatment and repair. This clinic deals with operative solutions to crown and bridge problems.

Topics will include: management of root caries in the elderly; furcation involvement; newer techniques for restoring mutilated and endodontically treated teeth; impression taking with an emphasis on the medically compromised patient.

Joseph Chasteen, D.D.S., M.A.

Seattle, Washington

"Selecting Compatible Members of a Dental Team"

This portion of the program focuses on effective strategies for recruiting and selecting individuals for the dental team. A hiring model is presented which incorporates the active input of the existing staff in the selection process.

Topics will include: needs identification; writing job descriptions; developing selection criteria; recruiting strategies; interpreting a resume; interviewing techniques; use of a Reference Questionnaire; evaluation of candidates and decision-making.



Touring the Experimental Farm.

(Canada's Capital Visitor and Convention Bureau photo)

FRENCH PROGRAM

Léon Lemian, D.D.S., M.S.D., M.R.C.D.(C)

Montreal, Quebec

"Endodontics: What's New?"

Some of the fundamental principals in root canal therapy remain the same, but the technological means by which these therapies are done seem to be changing.

Topics will include: new techniques and instruments in clinical endodontics, an evaluation of their efficiency, the indications and contra-indications of the use of each.

Ottawa 1990

Highlights of the 1990 Convention Program

FRENCH PROGRAM (continued)

Stéphane Schwartz, D.D.S., M.S.D.

Montreal, Quebec

"Treatment of the Primary Dentition"

Many clinicians hesitate to treat and restore primary incisors. By using relatively simple techniques one can obtain esthetic and durable results.

Topics will include: the use of stainless steel crowns in primary dentition; impacted permanent incisors - diagnosis and treatment.

Jacinthe Larivée, D.M.D., M.R.C.D.(C)

Montreal, Quebec

"Standards of Excellence in Clinical Periodontology"

After going through the examination, diagnosis and maintenance stages, the principle types of treatments that are used today will be reviewed.

Topics will include: controversial treatments; 'miracle' products presently on the market and the position of the American Academy of Periodontology on these products and materials.

Huan Pham, D.D.S., M.S.

Montreal, Quebec

"How to Prevent and Treat Complications in Oral Surgery"

Complications which arise during anaesthesia and oral surgery will be discussed, and different ways to reduce their incidence will be reviewed.

Topics will include: quality treatment; increasing patient safety and comfort; rendering surgery less stressful and more agreeable to dentists.

The following speakers will be featured in future issues of the CDA Journal:

Norman Levine
D.D.S., M.Sc.D., F.R.C.D.(C)
Toronto, Ontario

Dentistry for the Disabled

—
Monique Michaud
D.D.S., M.S.D.
Montreal, Quebec

"Oral Lesions: What's New"

Royal College of Dentists Speakers:

Dennis Nimchuk
D.D.S., M.R.C.D.(C)
Vancouver, British Columbia

Prosthodontics

—
David Precious
D.D.S., M.Sc., F.R.C.D.(C)
Halifax, Nova Scotia

Oral Surgery

—
David Flam
D.D.S.
Montreal, Quebec

Orthodontics

Grieve Memorial Lecture

Jack Dale
D.D.S., F.R.C.D.(C)
Toronto, Ontario

"Extractions in Orthodontics: A
Controversy of 100 Years"

University of Toronto Speakers

Ottawa 1990

Table Clinics

Table Clinics are defined as a brief table top presentation or demonstration of five to ten minutes duration using visual aids, and repeated over a 2 1/2 hour period.

Those interested in presenting, write to:

TABLE CLINICS
CDA Conventions
1815 Alta Vista Drive
Ottawa, Ontario
K1G 3Y6

Vaccination Clinic

**Engerix[®]-B
Hepatitis B vaccine
(recombinant)**

With the cooperation of Smith Kline and French, a vaccination clinic against the Hepatitis B virus will be offered to dentists, hygienists, assistants and technicians at a special rate for CDA convention participants.

The 3-dose program includes the injection of a first dose on site and the mailing of the 2nd and 3rd doses after the convention.

If you have already been vaccinated, the National Advisory Committee on Immunization feels that a booster dose after 5 years may be prudent.

ON SITE REGISTRATION ONLY.

Mike Duffy

"Ottawa from the Inside"

The 1990 edition of the **Murray McDonald Memorial Lecture** sponsored by the Canadian Fund for Dental Education (CFDE) will feature an address by Mr. Mike Duffy.

Many Canadians have come to realize that one way to follow what has happened in the country from one week to the next is to watch *Sunday Report* with Mike Duffy. A veteran of fourteen years with the CBC, Mr. Duffy has brought his unique style to CTV News in a program that is as wide ranging as his long journalistic career. Mr. Duffy delivers his serious insights against a backdrop of rollicking political humour — what else would one expect from a man who was named by *Chatelaine* as one of Canada's ten sexiest men!



Ottawa 1990

Spouses' Program

Tentative Program:

Monday, August 27

AM

"Humour as a Healer"

Lendon Smith, M.D.,
a.k.a. "The Children's Doctor"

12 Noon

Luncheon

PM

"Nutrition to Control Stress"

Lendon Smith, M.D.

In addition, in the afternoon, you may elect to discover Ottawa on a Rideau Canal Boat Tour (approximately 1 1/2 hours).

Tuesday, August 28

AM

National Art Gallery

Guided tour of the facility and free time to explore at your leisure.

12 Noon

Luncheon/Fashion Show
at the Gallery

PM

"Bringing Out the Best in Our Children"

Marion Balla, M.Ed., M.S.W.

As parents, we all wish to create a safe, strong and positive relationship with our children. To ensure this we must offer messages that children are lovable and capable. This presentation will focus on strategies to assist parents and children to enjoy each other on a daily basis as well as strategies to encourage children to take ownership for their own lives, i.e. clothing, homework, allowances.

Children's Program

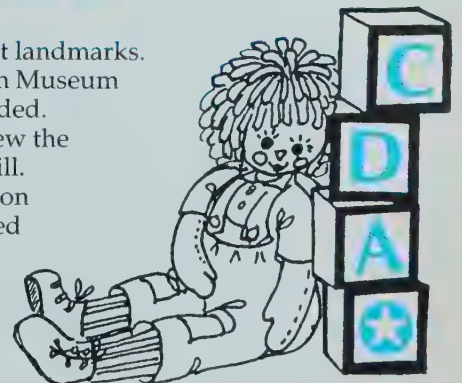
Two Days Balancing Learning, Discovery and Fun !

Monday, August 27 and Tuesday, August 28



The 1990 Children's Program will focus on the capital's newest landmarks. Organized visits to the recently renovated National Aviation Museum and Museum of Science and Technology will be included.

In addition, the children will have an opportunity to view the Changing of the Guard Ceremony on Parliament Hill. The Ottawa YM-YWCA will assist in the co-ordination of the Children's Program. Participants are reminded to pack their sneakers and swimsuits!



Ottawa 1990

Social Program

Sunday, August 26

Opening Ceremony

The Opening Ceremony is fast becoming a tradition at the CDA's Annual Convention. It's an event that strives to set the mood for four and a half days of learning and discovery.

This year the Opening Ceremony will combine the sights and sounds of 'capital' quality. Although the exact program is still under wraps we will soon be able to disclose details.

Last year we were overwhelmed by the attendance figures at the Opening Ceremony. More than 3,000 delegates were in attendance. To avoid disappointment – register early and indicate your wish to attend the Opening Ceremony on your registration form. **Space is limited.**

Monday, August 27

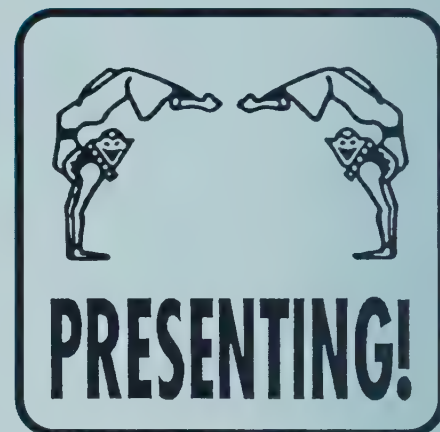
President's Gala: Bal Masqué

An evening of elegance and intrigue awaits you at the 1990 CDA Convention. The theme of the President's Gala will be "Bal Masqué". This black-tie (optional) affair will combine style and class to create a 'capital' event with an element of mystery. Pack your mask and be sure to register for the highlight of the 1990 CDA Convention's Social Program!

Tuesday, August 28

Meet and Greet at the 'Bytown Bash'

An informal evening to dance and socialize. At the Bytown Bash, convention delegates will have a prime opportunity to meet new friends and greet old acquaintances. There'll be live entertainment, a cash bar and a dance floor! So – pack your dancing shoes and get ready to have a good time in Canada's capital!



Babysitting Service – Monday and Tuesday Evening

Thanks to the efforts of the Spouses' and Children's Committee, babysitting services will be offered on a 'first-come, first-served' basis to convention delegates. ON SITE RESERVATIONS ONLY – SUBJECT TO AVAILABILITY.

CANADIAN DENTAL ASSOCIATION CONVENTION

Ottawa ■ August 25 - 29, 1990

ADVANCE REGISTRATION FORM ■ Please PRINT

With the computerized registration system, it is *essential* that each registrant fill out a separate form. To ensure your requests are accommodated - *register early*. Advance registrations will be accepted until **July 10, 1990** after which they will be returned to the sender. Each on-site registration will be subject to a \$25.00 administrative fee.

SURNAME: _____ FIRST NAME: _____ SEX: M F

ADDRESS: _____ (Street) (City) (Province)
TELEPHONE: () () () () () () (Residence)
(Postal Code) (Office)
CDA Membership Number: _____ License Number: _____

PRE-CONVENTION ■ AUGUST 25, 26 ■ Limited Attendance

SATURDAY, AUGUST 25

William Strupp, D.D.S. - CROWN & BRIDGE - Lecture

Dentist	\$ 160.00
Staff	\$ 70.00
Imtiaz Manji, B.Sc. - COMPUTERS - Hands-on Program	
Dentist (limited to 20)	\$ 160.00
Staff	\$ 90.00

SUNDAY, AUGUST 26

Irvin A. Roseman, D.D.S. - ENDODONTICS - Hands-on Program

Dentist (limited to 40)	\$ 200.00
Dick Barnes, D.D.S. - PRACTICE MANAGEMENT - Lecture	
Dentist	\$ 160.00
Staff	\$ 70.00

Torsten Jemt, D.D.S., Ph.D. - IMPLANTS - Hands-on Program

• TWO-DAY COURSE: SATURDAY AND SUNDAY •	
Dentist (limited to 40)	\$ 350.00

CONVENTION ■ AUGUST 27, 28, 29

☐ DENTIST
Member, CDA Nil
Non-member, Others \$ 145.00
Includes: Scientific sessions and exhibits

☐ DENTAL HYGIENIST
CDHA Member \$ 65.00
Non-member \$ 95.00
Includes: Scientific sessions and exhibits

☐ DENTAL ASSISTANT
CDA Member \$ 65.00
Non-member \$ 95.00
Includes: Scientific sessions and exhibits

☐ TECHNICIAN \$ 65.00
Includes: Scientific sessions and exhibits

☐ ADMINISTRATIVE PERSONNEL \$ 65.00
Includes: Scientific sessions and exhibits

☐ STUDENT ☐ Dentist ☐ Hygienist ☐ Assistant Nil
Includes: Scientific sessions and exhibits

☐ ACCOMPANYING PERSON/SPOUSE \$ 95.00
Includes: Scientific sessions, exhibits and Spouses' Program.

☐ CHILD \$ 50.00
Includes: Access to convention and Children's Program.

SOCIAL EVENTS

Sunday - Opening Ceremony - Subject to space availability
Will attend ☐ Yes ☐ No \$ Nil

Monday - President's Gala Evening (per person) \$ 45.00

Tuesday - Meet & Greet Evening

Will attend ☐ Yes ☐ No \$ Nil

TOTAL \$

The above registration fees are paid by _____

☐ I wish to pay the above total by credit card: ☐ MasterCard ☐ VISA ☐ AmEx

Card#: _____ Expiry date: _____

Signature of Cardholder: _____

☐ I enclose a cheque payable to the Canadian Dental Association.
Post-dated cheques will *not* be accepted.

Cancellation Policy:

- Cancellations received in writing on or before July 16, 1990 - full refund
- Cancellations after July 16, 1990 - subject to a 25% administrative charge
- No refund after August 10, 1990

Mail registration form with payment to:

1990 CDA Convention
1815 Alta Vista Drive
Ottawa, Ontario
K1G 3Y6

Ottawa 1990

How to register for the CDA Convention

Filling out Your Registration Form

1. Register early, some courses and events have limited attendance.
2. There is only one registration form to be used by all categories of participants.
3. Use one form per person (photocopy for several registrants).
4. Spouses and children should have a separate form for each individual.
5. Total the dollar amount of activities and courses you plan to attend, and either provide the necessary credit card information or make cheque payable to the Canadian Dental Association.
6. If your payment covers the cost for several registrants, your name or company name should be clearly indicated in the appropriate space on each registration form.
7. If hotel accommodation is needed, fill out the hotel reservation form.
8. If travel arrangements are needed, call Air Canada Convention Central for the best rates and services.

Filling out Your Hotel Reservation Form

1. Reserve early. August is a very busy month in Ottawa. We have negotiated for you the best rates possible at many of Ottawa's luxury hotels, but hotel rooms are limited in number.
2. CDA is handling the hotel reservations in house, so you will not be able to reserve directly with the hotel.
3. Use one reservation form per room.
4. Your reservation will be confirmed by the hotel.
5. You must guarantee your room for the first night by providing credit card details. The information you provide will remain with the hotel until your scheduled date of arrival – only then will the hotel credit your account.
6. Any further changes to reservations should be made through CDA headquarters.

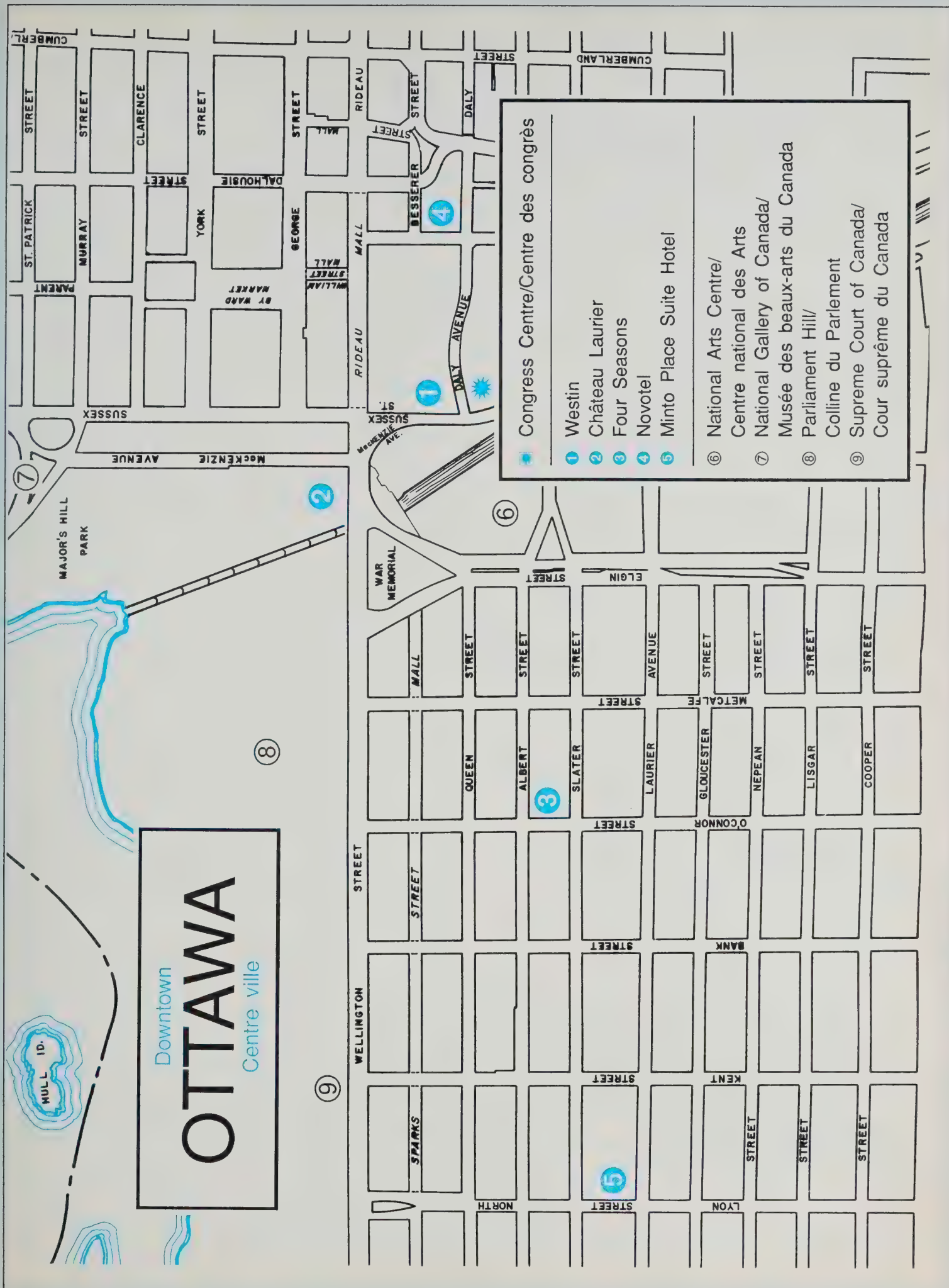
Making your Your Airline Reservations

Air Canada has been appointed the sole official carrier for the Canadian Dental Association 1990 Annual Convention in Ottawa. Special arrangements have been made with Air Canada to offer convention participants discounts on air fares. To take advantage of this service, you must call Air Canada's Convention Central when booking your tickets (your travel agent can call on your behalf). Dial **1-800-361-7585**. The Convention Central hotlines are open **weekdays, 8:30 a.m. to 8:00 p.m. EST/EDT**. Identify yourself and the CDA convention. Air Canada's convention experts will do the rest. The lowest fare available will be confirmed to you, subject to availability and advance purchase conditions.

Fly Canada's #1 Convention Airline to the 1990 CDA Convention in Ottawa, and SAVE. Through Convention Central, you also have the opportunity to save on car rentals. Ask for details when booking your flight. The Convention Central staff are eager to help in any way.

Not to be overlooked, Air Canada has graciously offered two economy class return tickets good for travel on any Air Canada serviced destination (except Bombay and Singapore). This will be the prize awarded in our Advance Registration Draw. To be eligible for the draw, dental team members must register for the convention before July 10, 1990.

AIR CANADA 
OFFICIAL CARRIER



Downtown
OTTAWA
Centre ville

- ☀ Congress Centre/Centre des congrès
- 1 Westin
 - 2 Château Laurier
 - 3 Four Seasons
 - 4 Novotel
 - 5 Minto Place Suite Hotel
 - 6 National Arts Centre/
Centre national des Arts
 - 7 National Gallery of Canada/
Musée des beaux-arts du Canada
 - 8 Parliament Hill/
Colline du Parlement
 - 9 Supreme Court of Canada/
Cour suprême du Canada

1990 CANADIAN DENTAL ASSOCIATION CONVENTION

August 25 - 29, 1990 ■ Ottawa, Ontario



Hotel Reservation Form

Please check appropriate category:

☐ Dentist ☐ Hygienist ☐ Assistant ☐ Exhibitor ☐ Office Personnel ☐ Other (please specify) _____

Name: _____

Address: _____

City: _____ Province: _____ Postal Code: _____

Telephone: () ()
(Residence) (Office)

Type of Room:

☐ Single ☐ Double ☐ Twin ☐ Other (please specify) _____

Indicate first three hotel choices (by numbering the boxes):

- ☐ Westin Hotel (CDA Headquarters) \$ 115.00 single / double
☐ Château Laurier Hotel \$ 112.00 single / double
☐ Four Seasons Hotel \$ 110.00 single / double
☐ Novotel \$ 89.00 single / double
☐ Minto Place Suite Hotel \$ 99.00 single / double

Arrival Date: _____

Departure Date: _____

Arrival Time: _____

In order to reserve a room, a guarantee for the first night is essential. The guarantee will apply to the first night ONLY.
To cancel your reservation advise the CDA at least three (3) days prior to your arrival.

☐ MasterCard ☐ American Express ☐ VISA

Card Number: _____

Expiry Date: _____

Signature: _____

Send Reservation Form to:

CDA Conventions
Canadian Dental Association
1815 Alta Vista Drive
Ottawa, Ontario
K1G 3Y6

DEADLINE for Reservations: July 10, 1990

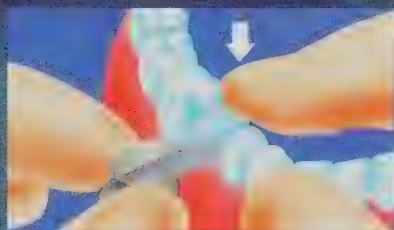
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Premier Cure-Thru® Squeeze Matrix System

The preformed special matrix with
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Traditional matrix retainers, which can distort light weight plastic bands, are no longer necessary.



1. A Squeeze Matrix is placed in the right position.



2. Pressing the metal ring together automatically adapts the matrix to the tooth.



3. Insertion of the Cure-Thru® Wedge. Bending the compressed metal ring.

A test will convince you!

The Introductory Kit #61341 contains:
50 Cure-Thru® Squeeze Matrix Bands, 50 Cure-Thru® Wedges, plus assorted free samples.

Made in Switzerland by

hawt neos dental



Premier Dental Canada Inc.
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Contains: 10 Premolar, 5 Molar Squeeze Matrices
and 15 Reflective Cure-ThruWedges

Dr. _____

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City _____ State _____ Zip _____

Forward coupon directly to your dealer. Offer expires 7/31/90
Dealer, please note: Cure-Thru trial pkg. (#61240) now available from Premier.

Order through your dealer.

PLAX.* BRU

A new regimen in th

Between checkups, your patients are on their own in the fight against plaque.

But they're not defenseless.

They have the means to effectively control plaque every day.

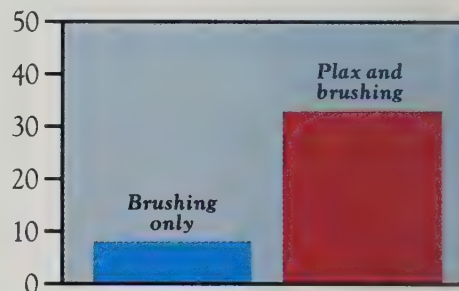
A toothbrush. A package of floss. And Plax.

The First Step

A pre-brushing dental rinse, Plax is the first step in the fight against plaque.

Clinical tests prove that rinsing with Plax *before* brushing removes up to 3 times more plaque than brushing alone.¹

And in hard-to-reach areas, the results are even more dramatic with Plax.¹



Removes up to 3 times more plaque than brushing alone.



SH. FLOSS.

fight against plaque.

A New Daily Regimen

Incorporating Plax into the daily regimen of brushing and flossing is easy.

Because Plax is so easy to use. Patients simply rinse with 1 tablespoon (15 mL) of Plax for 30 seconds *before* brushing with their usual toothpaste.

The refreshing taste of Plax gets the daily regimen off to a fresh start. And encourages compliance.

The Most Recommended Plaque Remover

Plax is the only pre-brushing dental rinse proven to remove significant amounts of plaque.

A national survey of 401 dental professionals shows that those who recommend an anti-plaque dental rinse, recommend Plax most.²

Plax is clearly earning the respect of dentists and dental hygienists.

And taking its place in a new daily regimen.



CHECKS PLAQUE BETWEEN CHECKUPS.

References: 1. Emling RC, Yankell SL. Comp Contin Ed 1985;6:637-645. 2. Independent Market Survey, April 1989.

*TM Oral Research Laboratories Inc. Leeming Division - Pfizer Canada Inc., auth. user.

Active Ingredients: Sodium Benzoate 2.00%, Sodium Salicylate 0.20%, Sodium Lauryl Sulfate 0.25%.

PAAB
CCPP



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Vancouver 1-800-663-1721

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Classic Dental Laboratories Ltd.

Ottawa 1-800-267-7040

E.J. Pow Laboratories Inc.

Woodstock 1-800-265-4052

Laboratoire Dentaire Morisset Inc.

Quebec (418) 529-9219

Laboratoire Dentec Inc.

Charlesbourg (418) 628-5039

Lafond & Marston Inc.

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The M.A.D.S. Method: A Revolutionary Proposal for the Early Settlement of Matrimonial Cases

by Gene C. Colman*

"Settle the case! I'm fed up with this already!", Mary complained to her family law lawyer. Mary pointedly told her lawyer that he had this case for almost a year now. She could not understand why everything seemed to take so long. Her lawyer patiently explained to her, "Mary, we don't know what his pension is worth yet. Remember, we asked for a pension statement from his employer four months ago. Well, we haven't received it yet. And what about his RRSP? We asked his lawyer for that statement six months ago. Your husband's lawyer says he's asked your husband for that statement but it hasn't come in yet. I can't settle your case until we know how much he is really worth."

How often have family law lawyers heard such insistent instructions from their frustrated clients? Why do divorce and separation cases seem to drag on so? Why should people have to endure this tortuous delay and expense?

The simple answer is — "they don't!" While Mary's lawyer is right in that before he could settle her case he must have the entire financial picture on the table, the fact remains that there is another way. The M.A.D.S. method calls for an entirely different approach by lawyers and litigants alike. "M.A.D.S." stands for "Matrimonial Alternate Dispute Solutions". All it requires are people who are mad enough with the current wasteful system — lawyers willing to take a fresh no-nonsense approach and their clients who are *truly* interested in reaching expeditious *less costly* solutions to their differences.

Lawyers Reluctant

Lawyers are quite naturally reluctant to advise clients as to what a reasonable result should be until all the significant documents and facts relevant to the case are known. This reluctance is well-founded because the *facts* must clearly influence what the *result* should be. For example, if Joe says his business is worth



\$50,000, yet he refuses to produce the financial statements for the last five years, the lawyer for Joe's wife would be negligent if he simply took Joe's word on it. The lawyer must insist on production of the statements as well as free access to the business's books in order to gain even an elementary understanding of the business's worth. Armed with this information, a professional valuator can advise the lawyer and his client at an early stage what the possible range of value of the business might be.

Get the relevant documents

Our legal system requires full and complete production of all documents and information *relevant* to the issues — at a very early stage of the case. The clear tendency of the courts is to favour disclosure. Where a spouse attempts to hide relevant documents, the courts have seldom permitted this. Unfortunately, many lawyers are not insistent that all relevant documents be produced at the outset. Therefore, cases tend to drift aimlessly along through motions and pre-trial examinations (referred to as cross-examinations and discoveries) as the lawyers in a piecemeal fashion disclose and pick up the relevant material. There

is no valid reason for clients to put up with this delay and waste of time.

The M.A.D.S. method requires complete early disclosure of all documents by both sides. Each side is required to produce to the other *at the outset* of the case a fully indexed photocopied brief of all relevant documents organized according to the various topics. For example, under "employment", you produce copies of any employment contracts, pay stubs, and income tax returns for the last five years. Under "chattels", you produce copies of any available receipts for goods purchased and still owned.

Early settlement meeting

Within ten days of these documentary briefs being exchanged, the lawyers meet face-to-face. The clients are either present at the table, or if that causes too much emotional strain on one or both parties, then they may be sequestered in separate offices nearby. The lawyers then make further requests for any documents *inadvertently* omitted. This meeting also gives each lawyer an opportunity to informally question the opposite party in order to obtain explanation, clarification and amplification of the facts of the case as reflected in the documents.

At this first meeting, the next order of business is to immediately resolve any issues that simply cannot wait for further inquiry. For example, if support pending a final settlement is required, the lawyers try to agree on a figure. However, unlike interim court orders that may continue for months or even years until a trial date arrives, the parties agree under the M.A.D.S. method that this interim support is valid for a very limited time only — perhaps only 30 days or 45 days. Other interim matters are agreed upon, again with clear time limits set to prevent a status quo argument from becoming credible at a future stage of the litigation, such as at trial. The interim agreement is typed up on the spot with the parties and

their counsel signing before leaving the meeting.

Court arrangements

If this first meeting cannot produce the necessary interim arrangements to meet the concerns of the parties, then the M.A.D.S. method requires that one side bring the case before the court on an interim basis within two weeks. All written material to be presented to the court must be prepared and served on the other side within six days of the meeting. Any reply must likewise be served within a further six days. Alternatively, and if the parties can afford it, they present their cases upon a date fixed within two weeks to an arbitrator whose decision is binding.

Next steps to settle

With interim matters disposed of, the lawyers and their clients can then turn to immediately obtaining professional valuations of any major items of property, where this is required. The M.A.D.S. method is explained to the valuator by the lawyer in terms that emphasize the speed required. The valuator is requested to complete his/her work within thirty days. Where possible, the parties agree in advance to retain one valuator and to be bound by that valuation. In any event, all valuations are then produced.

While valuations are being prepared, the lawyers use that time to address written questions to the other side upon any factual matter relevant to the case. These written exchanges can take the place of otherwise lengthy and expensive examinations for discovery that are normally conducted prior to trial.

Now all the facts are on the table. Each party prepares a comprehensive settlement proposal and sends it to the other side. Within five days of exchange of proposals, the two sides again meet with the lawyers and attempt to reach a final settlement. If desired, this meeting can assume the guise of a formal arbitration provided funds are available to hire an arbitrator. Alternatively, negotiations are direct. If a settlement is reached, a memorandum is signed that day and the lawyers then prepare a formal separation agreement which should be ready within seven days of this meeting.

Custody and access

The M.A.D.S. method is best suited for the resolution of financial matters only. Concurrently with its progression through

the stages described above, and where custody and/or access matters require resolution, the parties are referred to a professional family mediator who is trained to assist families reach an agreement in matters of this nature.

Is M.A.D.S. for everyone?

The M.A.D.S. method is *not* suitable for all situations. Where either a lawyer or client is not able or does not wish to make full and complete timely disclosure, then this system will simply not work. It requires a high degree of cooperation and awareness of one's real self-interest (i.e. you can save a lot of money on legal fees) in order to succeed.

The M.A.D.S. method as described in this article can be adapted to individual situations. The time frames are only suggested. Slightly longer time periods can be stipulated, but these periods should

be agreed to in writing in advance. That way, each side knows what is expected and when it is expected!

If adoption of the M.A.D.S. method does not result in an immediate settlement, it at least has the advantage of forcing clients and their lawyers to get all of the information on the table at a very early stage. This in itself is a fantastic time saver if the case moves on to court as one of the main causes of delay in family law disputes is the obtaining of disclosure and valuations. A further advantage is that it forces the lawyers and their clients to seriously come to grips with the real issues in the case from the outset. Either way — settlement or no settlement — adoption of the M.A.D.S. method means a real saving in legal cost to the client as well as a much quicker ultimate resolution of the case. Δ

* Gene C. Colman, BA, LLB, practices family law with Teplitsky, Colson (Toronto and Brampton).

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The California Bridge — Truly Conservative Fixed Bridgework

H.J. Maier, RDT

Over the past decade, new techniques and procedures have continually evolved in an attempt to meet two key criteria in today's dentistry: minimized reduction of virgin or intact teeth and more affordable cost for the patient. Now, a truly conservative fixed bridgework alternative is available, the "California Bridge".

Constructed using inlays or Maryland wings as the abutments, the California Bridge provides the ultimate in versatility. The abutment teeth can be prepared in a wide variety of ways. Full or partial reduction, even no reduction at all, are all acceptable depending on the particular case situation.

The key to the restorative procedure is the Silicoater method introduced in this column (June 1989, Vol. 55, No. 6). The Silicoater method creates a strong bond between resin and metal alloys, eliminating the mechanical retentive devices and marginal gaps that complicated metal/resin restorations in the past. When applied to the California Bridge concept, this method allows an inlay supported



fixed bridge to be constructed utilizing a non-precious metal internal substrate to support the pontic. This substrate is then built up with resin materials. The total result: optimal esthetics and function at a very reasonable cost. Once completed, the bridge is easily bonded into place with a dual cure bonding medium.

Preparation of the abutment teeth is an important prerequisite to the overall success of the restoration. If inlays are used, the preparations should be box-like with both resistance and retention form and rounded internal angles. Dentists employing the California Bridge in their practices have found this design very successful in resisting both lateral and vertical displacement. It is also important that adequate occlusal reduction be carried out in the box form to accommodate the resin and metal substrate. If Maryland wings were selected for the particular case, simply adapt them normally.

One word of caution: The California Bridge prosthesis is contraindicated in cases involving compromised dentitions, excessive wear or bruxing. The California Bridge — Ask your laboratory about this exciting new alternative today. Δ

Mr. H.J. (Hyo) Maier, RDT is President of Aurum Ceramic/Classic Dental Laboratories, Ltd.



Pre-operative photo.



California Bridge showing metal substructure and porcelain for premolar onlay and canine inlay as replacing first premolar.



Conventional PFG bridge replaces missing molar with California Bridge of premolar onlay and canine inlay as premolar replacement. Note that occlusal contacting surface of canine is intact.

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^(acyclovir) **ZOVIRAX® OINTMENT 5%** (4 g and 15 g tubes)

INDICATIONS AND CLINICAL USE: ZOVIRAX Ointment 5% is indicated for the management of initial episodes of genital herpes simplex infections. It is also indicated in the management of nonlife-threatening cutaneous herpes simplex virus infections in immunocompromised patients. The prophylactic use of this preparation has not been established.

In genital herpes, appropriate examinations should be performed to rule out other sexually transmitted diseases.

These indications are based on the results of a number of double-blind, placebo-controlled studies which examined changes in virus excretion, healing of lesions and relief of pain. Because of the wide biological variations inherent in herpes simplex infections, the following summary is presented merely to illustrate the spectrum of responses observed to date. As in the treatment of any infectious disease, the best response may be expected when therapy is begun at the earliest possible moment.

In immunocompromised patients, 93% were virus negative after 5 days of topical ZOVIRAX therapy, whereas only 35% of placebo recipients were virus negative at the same time.

In patients with herpes labialis, there was a significantly greater decrease in the amount of virus excreted after one day of therapy in those receiving ZOVIRAX within 8 hours of the onset of cold sores when compared to identically treated placebo patients.

Because complete re-epithelialization of herpes-disrupted integument necessitates recruitment of several complex repair mechanisms, the physician should be aware that the disappearance of visible lesions is somewhat variable and will occur later than the cessation of virus shedding. All immunocompromised patients who received topical ZOVIRAX had healed their lesions 23 days after the initiation of a 10-day course of therapy. 75% of placebo patients had healed lesions at that point. Some placebo patients continued to have visible lesions for more than 30 days.

Pain associated with herpes infections is highly variable in frequency and intensity. One hundred percent of the ZOVIRAX-treated immunocompromised patients were pain-free by day 23 versus 70% of placebo-treated patients.

Whereas cutaneous lesions associated with herpes simplex infections are often pathognomonic, Tzanck smears prepared from lesion exudate or scrapings may assist in the diagnosis. Positive cultures for herpes simplex virus offer the only absolute means for confirmation of the diagnosis.

CONTRAINDICATIONS: ZOVIRAX Ointment 5% is contraindicated for patients who develop hypersensitivity or chemical intolerance to any of the components of the formulation, such as polyethylene-glycol.

WARNINGS: ZOVIRAX Ointment 5% is intended for topical use only and should not be used in the eye or on mucous membranes.

PRECAUTIONS: The recommended dosage, frequency of application and duration of treatment of ZOVIRAX Ointment 5% should not be exceeded.

It is not known whether acyclovir is excreted in human milk.

Because many drugs are excreted in human milk, caution should be exercised when ZOVIRAX is administered to a nursing mother.

ZOVIRAX Ointment 5% should be used during pregnancy only if the physician feels the benefit will outweigh the possible harm to the fetus.

Safety of use of ZOVIRAX Ointment 5% in children has not been established.

There exist no data, at this time, which demonstrate that the use of ZOVIRAX Ointment 5% will prevent transmission of infection to other persons.

Since most cutaneous herpes simplex virus infections result from reactivation of latent virus, it is unlikely that ZOVIRAX Ointment 5% will prevent recurrence of infections when applied in the absence of signs and symptoms. ZOVIRAX Ointment 5% should not be applied in an attempt to prevent recurrences: application should commence only at the earliest prodromal sign of disease onset.

Although clinically significant viral resistance associated with the use of ZOVIRAX Ointment 5% has not been observed, this possibility exists.

ADVERSE REACTIONS: Because ulcerated genital lesions are characteristically tender and sensitive to any contact or manipulation, patients may experience discomfort upon application of ointment. In the controlled clinical trials, mild pain (including transient burning and stinging) was reported by 103 (28.3%) of 364 patients treated with ZOVIRAX Ointment 5% and by 115 (31.1%) of 370 patients treated with placebo; treatment was discontinued in 2 of these patients. Other local reactions among acyclovir-treated patients included pruritus in 15 (4.1%), rash in 1 (0.3%) and vulvitis in 1 (0.3%). Among the placebo-treated patients, pruritus was reported by 17 (4.6%) and rash by 1 (0.3%).

In all studies, there was no significant difference between the drug and placebo group in the rate or type of reported adverse reactions.

SYMPTOMS AND TREATMENT OF OVERDOSAGE: Overdosage by topical application of ZOVIRAX Ointment 5% is unlikely because of limited transcutaneous absorption.

DOSAGE AND ADMINISTRATION: Apply ZOVIRAX Ointment 5% liberally to the affected area 4 to 6 times daily for up to 10 days. A sufficient quantity of ointment should be applied to adequately cover all lesions. A finger cot or rubber glove should be used while applying ZOVIRAX in order to prevent:

- (1) autoinoculation of other body sites or
- (2) transmission of infection to other persons.

Therapy should be initiated as early as possible following onset of signs and symptoms.

AVAILABILITY: ZOVIRAX Ointment 5% is available in tubes of 4 g and 15 g. Each gram contains 50 mg acyclovir in a polyethylene-glycol base. ZOVIRAX Ointment 5% is for topical administration.

Product Monograph available on request.

Reference:

1. Whitley RJ, Levin M, Barton N, et al: Infections caused by herpes simplex virus in the immunocompromised host: Natural history and topical acyclovir therapy. *J Infect Dis* 1984;150:323-329

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Common Acanthotic and Keratotic Lesions of the Oral Mucosa: A Review

T.D. Daley, DDS, MSc, FRCD(C)
London, Ont.

ABSTRACT

White lesions of the oral mucosa are common. Dentists must be aware of the diseases that can cause these lesions, the terminology used to describe them histologically, and their significance to the patient. This paper presents a review of basic terminology and a brief description of common acanthotic and/or keratotic lesions of the oral mucous membranes.

SOMMAIRE

Les lésions blanches à la muqueuse buccale sont fréquentes. Les dentistes doivent connaître les maladies qui les causent, la terminologie employée pour les décrire du point de vue histologique et leur importance pour le patient. Dans cet article, on trouvera les principaux termes utilisés et une brève description des lésions acanthosiques ou kératosiques communes survenant à la muqueuse buccale.

From time to time, dentists are confronted with white lesions of their patients' oral mucosa. Although a diagnosis for many of these lesions can be made clinically, some must be biopsied. This article is intended to review terminology and briefly describe some common acanthotic and keratotic lesions of the oral mucous membranes.

Normal Oral Epithelium

Most surfaces of the oral mucosa are covered by stratified squamous epithelium. Non-keratinized epithelium (Fig. 1a), found in buccal mucosa, floor of the mouth, mucosa of the lips, ventral surface of the tongue and soft palate, is translucent, allowing underlying red blood pigments to produce the characteristic pink colour of these tissues. Parakeratin (Fig. 1b), present on gingiva and hard palate, reduces the translucency of the epithelium, causing a pale pink to whitish clinical appearance. Occasionally, parakeratin is replaced by ortho-

keratin (Fig. 1c) which is even less translucent and usually appears white in the oral cavity. The term "keratinization" refers to either parakeratinization, orthokeratinization or both.

Acanthotic and Keratotic Lesions

Alterations in the normal maturation of oral epithelium involve reactive, immunologically mediated, physically/chemically induced, infectious, neoplastic or idiopathic processes. The presence of abnormally thickened or keratotic epithelium usually induces a clinical whitening of the mucosa.¹⁻⁴

1) Leukoplakia

A white area on the oral mucosa, that does not rub off and cannot be diagnosed clinically as a specific disease (e.g., lichen planus, candidiasis) is termed "leukoplakia" (Fig. 2), meaning simply, a "white plaque". It is a *Clinical* term and includes many specific diseases which

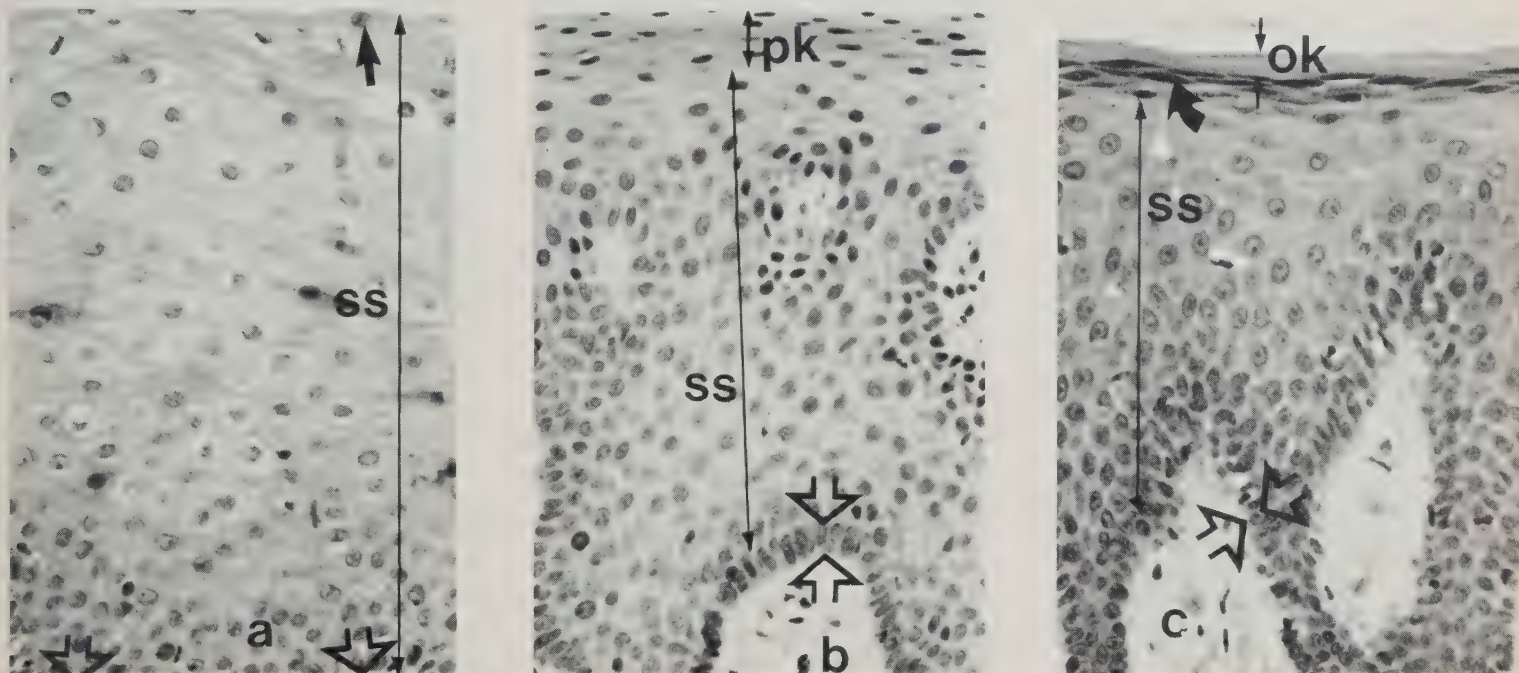


Fig. 1: These photomicrographs illustrate the differences in the three basic types of stratified squamous epithelium. Non-keratinized epithelium (a) occurs when cells of the stratum spinosum (ss) extend from the basal layer (open arrows) of the epithelium to the surface (arrow). Parakeratinized epithelium (b) exhibits an additional surface layer of parakeratin (pk)

consisting of thin cells with long thin nuclei. Orthokeratinized epithelium (c) exhibits a superficial granular cell layer (curved arrow) surfaced by a layer of orthokeratin (ok), which is devoid of nuclei. (Hematoxylin and eosin, Mag X200).

can be differentiated microscopically. About 80 per cent of leukoplakias are benign lesions, usually reactive or idiopathic hyperkeratoses; about 15 per cent are epithelial dysplasias and about 5 per cent are malignant.³

Common Microscopic Diagnoses for Leukoplakias

- 1a) **Acanthosis:** A thickening of the stratum spinosum. Clinically, it produces a pale grey-white, film-like translucency when not associated with keratosis.
- 1b) **Hyperparakeratosis (Fig. 3a):** The presence of parakeratin on normally non-keratinized mucosa or a thickening of a normally present parakeratin layer is called "hyperparakeratosis". It is usually a reactive response to some stimulus such as low-grade chronic trauma by a denture, heat and/or chemical irritants from smoking (nicotinic stomatitis), or cheek or lip biting. It can usually be treated successfully by removing the source of irritation.
- 1c) **Hyperorthokeratosis:** The presence of orthokeratin on the oral mucous membranes. Its etiology is similar, in many cases, to that of hyperparakeratosis.
- 1d) **Mild Epithelial Dysplasia:** The cells in this lesion begin to exhibit subtle changes usually coupled with alterations in epithelial kinetics, producing changes in the architecture of the epithelium. These changes are believed by most authorities to be reversible if an inciting cause can be identified and removed.³
- 1e) **Moderate Epithelial Dysplasia (Fig. 3b):** Cells begin to exhibit distinct nuclear and cytoplasmic changes, and/or alterations in maturation sequence. The reversibility of this lesion is undefined.
- 1f) **Severe Epithelial Dysplasia:** Cells exhibit marked nuclear and cytoplasmic changes with loss of normal maturation. Most authorities believe that this lesion will ultimately become an invasive squamous cell carcinoma if not treated by complete surgical excision.
- 1g) **Carcinoma in Situ:** The epithelial cells exhibit features of malignant cells, involving the entire thickness of the epithelium, exclusive of the keratinized layers, without breaching the basement membrane.
- 1h) **Invasive Squamous Cell Carcinoma:** malignant epithelial cells invade into the underlying connective tissue.



Fig. 2: This patient exhibits leukoplakia of the left mandibular labial/buccal attached gingiva, extending onto the mucobuccal fold, but sparing the marginal gingiva. The exact nature of the lesion must be determined microscopically from a biopsy.



Fig. 4: Lichen planus, Reticular Type: The intersecting white lines with fine perpendicular white radiations are characteristic of lichen planus.



Fig. 5: Chronic hyperplastic candidiasis: A white lesion on the buccal mucosa just inside the labial commissure such as the one illustrated, is likely to be a hyperplastic epithelial reaction to candida. These lesions are usually bilateral, of long duration and often associated with perleche. This patient also exhibits racial pigmentation and leukodema.

2) Leukodema

Leukodema is essentially a variant of normal, especially in black populations, in which the buccal mucosa exhibits a faint grey-white, filmy, diffuse translucency, often extending superiorly and inferiorly from the linea alba. It may be associated with wrinkling in exaggerated cases. Histologically, leukodema is seen as an acanthosis with poorly formed parakeratin.



Fig. 3a: Hyperparakeratosis is the term used to describe the presence of excess parakeratin as illustrated in this lesion (arrows). Compare Fig. 1b. (Hematoxylin and eosin, Mag X200).

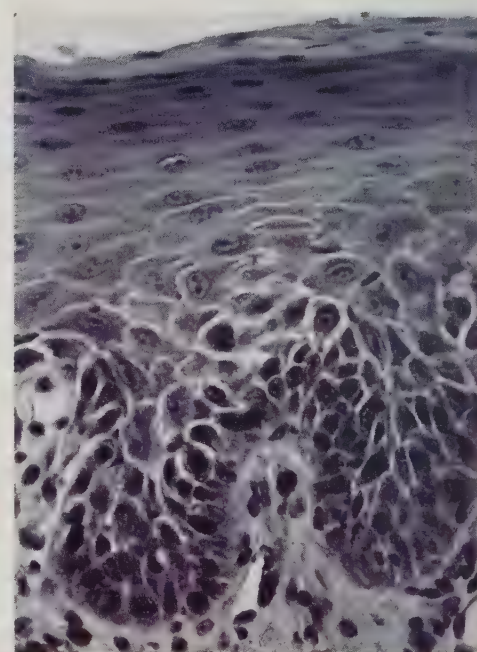


Fig. 3b: Mildly to moderately dysplastic epithelium. The cells of the basal and parabasal layers have hyperchromatic nuclei and exhibit little differentiation into normal stratum spinosum cells within the rete pegs. The rete pegs have a pendulous outline. Compare Fig. 1b. (Hematoxylin and eosin, Mag X200).

3) White Sponge Nevus

White sponge nevus is an autosomal dominantly inherited disease that characteristically affects the buccal mucosa, but may affect the oral mucosa anywhere. It appears as a white, sometimes shaggy or folded thickening that occurs first in childhood, and persists, more or less, for life. Microscopically there is acanthosis with a peculiar type of parakeratosis.

Treatment is unnecessary.

4) Lichen Planus

Lichen planus is an extremely common disease that may involve mucous membranes, skin, or both. In the oral cavity, it occurs most often on the buccal mucosa but may be seen anywhere, including the gingiva, vermillion zone and dorsum of the tongue. Multifocality and symmetry are consistent features of the disease. It is found most often in middle-aged and elderly patients and more often in females. On the skin, lichen planus forms small, pruritic violaceous papules that may coalesce into plaques. Orally, the classical reticular type consists of criss-crossing lacy white lines (Wickham's striae), rings, and/or small white papules with fine white striae radiating from them at right angles (Fig. 4). Plaque lesions consisting of white patches are sometimes found, particularly on the dorsum of the tongue. Atrophic, erosive and bullous forms exist.

The disease lasts for months, years and decades, waxing and waning. Treatment is necessary for ulcerative lesions only, and consists of topical or systemic corticosteroids.

Microscopically, lichen planus consists of a band-like infiltrate of lymphocytes immediately below the epithelium. Epithelial changes include focal liquefactive degeneration of cells of the basal layer, acanthosis (in the hypertrophic type) or atrophy of the stratum spinosum (in the atrophic type), and hyperparakeratosis and/or hyperorthokeratosis. "Saw tooth" rete peg formation is often present.

Occasionally, drug reactions will induce lichen planus-like lesions of the oral mucosa. They are reversible upon cessation of the offending drug.

5) Infectious Lesions

5a) Candidiasis

Candidiasis presents many clinical forms orally, including the atrophic form characterized clinically by red areas and histologically by epithelial atrophy (e.g., as seen in denture sore mouth), perlèche, and the acute pseudomembranous form in which mycelia grow on and in the surface of the epithelium, but can be scraped off. The chronic hyperplastic form of candidiasis is associated with hyperparakeratosis that presents a white lesion clinically, typically on the buccal mucosa just inside the labial commissures (Fig. 5) or on the mid-dorsum of the tongue, associated with a red patch (atrophic candidiasis) anterior to the circumvallate papillae (median rhomboid glossitis).



Fig. 6: *Verruca vulgaris:* This young patient exhibits a verrucous, sessile white lesion of the mucosa of the labial commissure. He also has warts on his fingers. (Courtesy of Dr. G. Wysocki)

Microscopically, the affected tissues exhibit hyperparakeratosis, acanthosis, and neutrophils in the epithelium attacking candidal pseudohyphae that grow into the surface layers. There is an associated subepithelial lymphocytic infiltrate.

Antifungal therapy will usually cure the infection, although some are resistant, but the white hyperkeratotic lesion may persist for months. Recurrence is common.

5b) Human Papilloma Virus (HPV) Lesions

Verruca vulgaris (wart), (HPV types 2 and 4), (Fig. 6), is a sessile, papillary, white nodule, solitary or multiple, that may occur on any of the oral mucous membranes at any age. There is a predilection for children and teenagers who have skin warts, especially on the hands by which they can auto-inoculate these infectious lesions into the mouth. Microscopically, the lesions are characterized by hyperkeratosis, both parakeratin and orthokeratin, papillomatosis of the epithelium, the presence of koilocytes (vacuolated epithelial cells containing shrivelled nuclei), and a chronic inflammatory infiltrate in the underlying connective tissue.

Condyloma acuminatum, (HPV types 6 and 11), commonly found on the genitalia, are found with increasing frequency on the oral mucosa, usually as a result of oral-genital contact. The asymptomatic, pink, fleshy, papillary lesions are more commonly found in young, sexually active individuals. Microscopically, they exhibit a marked acanthosis with koilocytes and a thin superficial parakeratosis. Surgical excision is the treatment of choice.

5c) Hairy leukoplakia

Patients infected by human immunodeficiency virus (HIV) sometimes develop corrugated white ridges or plaques along the lateral sides of the tongue. Small smooth-surfaced lesions are occasionally found on the dorsum of the tongue, buccal mucosa, floor of the mouth or palatal mucosa. These lesions are characteristi-

cally infected by Epstein-Barr virus, and by candida, although HIV itself is not found. It is reported to be an ominous sign of impending AIDS when it develops in the pre-AIDS state. Microscopically, the lesions exhibit a marked acanthosis with the presence of large vacuolated cells in the upper stratum spinosum, and parakeratosis, usually exhibiting numerous candidal pseudohyphae.⁵ Antifungal therapy may be given, but does not cure the hairy leukoplakia.

6) Hairy Tongue

Hairy tongue is caused by elongated filiform papillae covering the dorsum of the tongue with a carpet of hairy keratin projections. These are white (white hairy tongue), but frequently become discoloured by the entrapment of pigmented particles between and around the keratin "hairs". Tobacco smokers and chewers, tea and coffee drinkers exhibit brown staining (brown hairy tongue).

Hairy tongue is of unknown etiology, although it is sometimes associated with smoking, radiation or antibiotic therapy. It occurs more frequently in adults.

The asymptomatic condition can usually be treated successfully by initial debridement and habitual brushing of the tongue.

7) Other Keratotic Lesions

There are a number of other oral lesions which are associated with keratosis, but these are uncommon or rare. A partial list of these entities includes lupus erythematosus, hereditary benign intraepithelial dyskeratosis, follicular keratosis, warty dyskeratoma, oral psoriasis, keratoacanthoma, verruciform xanthoma, pachonychia congenita, dyskeratosis congenita, verrucous hyperplasia and hypovitaminosis A. Interested readers are referred to oral pathology textbooks for more information.¹⁻³ Δ

Dr. Daley is associate professor, Division of Oral Pathology, Department of Pathology, University of Western Ontario, London, Ont. N6A 5C1.

Reprint requests to Dr. Daley.

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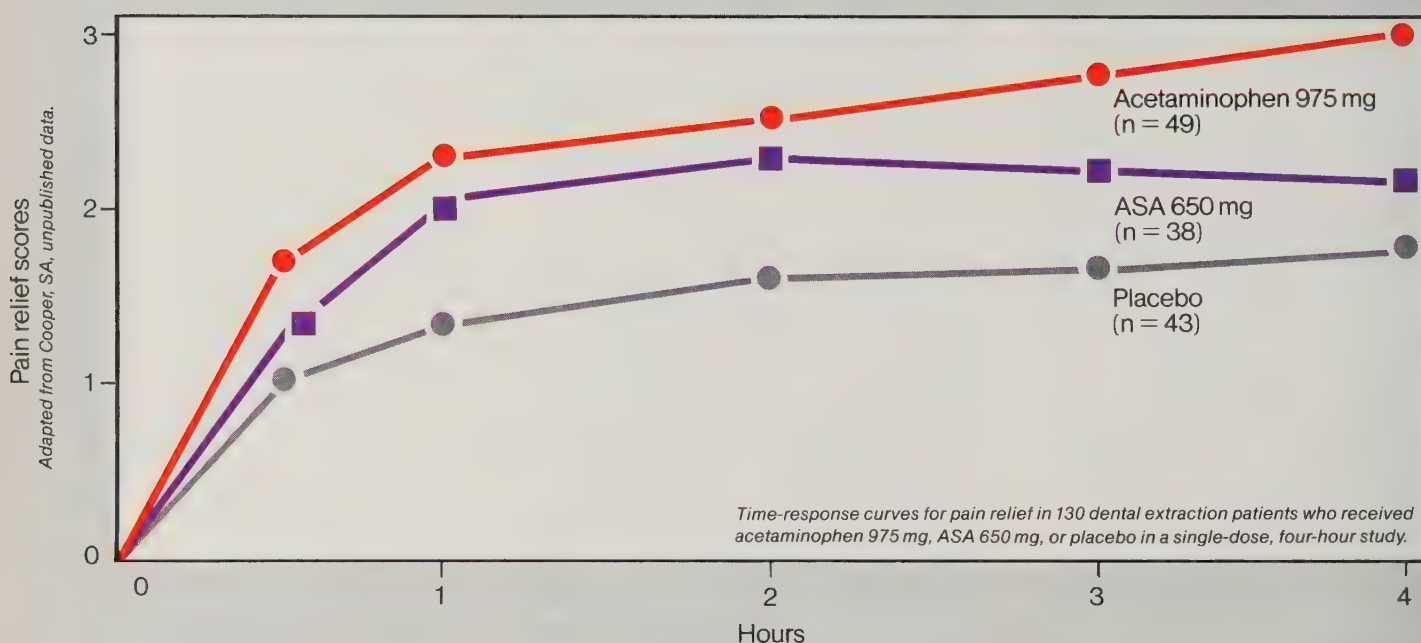
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Clinical Applications of Osseointegrated Implants

Douglas J. Paterson, DDS, Dip. OS and Anesth., * MD, FRCD(C)

Frank L. Foster, BDS**

Paul F. Smith, DDS***

ABSTRACT

In the described seven case reports, the authors have demonstrated a number of varied applications of osseointegrated implant techniques including both removable and fixed prostheses. All patients had expressed dissatisfaction with previous prosthetic efforts to restore a satisfactory level of mastication or a desire to do away with removable oral prostheses. A high level of patient satisfaction was achieved through the application of implant techniques in these patients. Proper treatment planning must now include a consideration of implant dentistry as well as the previously available conventional alternatives for our edentulous and partially edentulous patients.

SOMMAIRE

Dans les sept rapports de cas décrits ci-dessous, on démontre diverses applications des techniques d'osséointégration, y compris les prothèses fixes et amovibles. Tous les patients s'étaient dit insatisfaits des essais précédents pour restaurer leur mastication à un niveau acceptable ou avaient exprimé le désir de se défaire de leurs prothèses amovibles. Tous ont été très satisfaits des implants qu'on leur a faits. Un bon plan de traitement doit maintenant prendre en compte les implants dentaires aussi bien que les solutions conventionnelles qui existaient auparavant pour venir en aide aux patients partiellement ou complètement édentés.

Introduction

Today's practitioner is faced with a wide array of treatment modalities to satisfy the needs of the partially edentulous and fully edentulous patient. It behooves every practitioner to discuss all available modalities of treatment in each clinical situation to ensure that the patient is properly informed of their treatment options.

Modern oral implantology has added yet another dimension to the treatment of the



Figure 1: cephalometric film demonstrating pseudo-prognathic jaw malrelationship due to overclosure



Figure 3: mandibular magnetically-fitted overdenture

fully edentulous and partially edentulous patient. The experience of Swedish implantologists such as Dr. P.I. Brånemark, who have investigated and championed a system of osseointegrated implant techniques,¹ has provided today's practitioner with a reliable and extremely gratifying method of treating many previously perplexing clinical situations.

The use of implants in clinical practice has progressed well beyond the boundaries of the university and teaching hospital setting. This article will illustrate a number of case histories which portray the successful application of the Brånemark technique by general practitioner-oral and



Figure 2: cephalometric film with mandible in rest position showing normal A-P jaw relationship



Figure 4: the finished dentures inserted and occluding normally

maxillofacial surgical teams outside the university setting. In virtually all of these cases, the patient's presenting complaints were those of dissatisfaction with previous prosthetic and/or prosthetic-surgical efforts that left the patient with less than optimum masticatory capabilities. In all cases, thoughtfully conceived and properly applied implant surgical and prosthetic techniques have provided these patients with increased levels of masticatory performance and satisfaction with their oral state that previously was not achievable through other avenues of therapy. As well, many of the secondary complaints of the edentulous or partially edentulous patient (upper G.I. symptomatology such as dyspepsia, bloating, acid reflux; weight loss; progressive loss of facial vertical dimension or premature aging; frequent denture-related sores; and inability to competently incise and masticate many favourite foods) were resolved through implant dentistry.

University Affiliations:

* Douglas J. Paterson, DDS — University of Toronto
Dip. OS and Anaesth. — University of Toronto
MD — University of Toronto

** Frank L. Foster, BDS — University of
Newcastle-Upon-Tyne

*** Paul F. Smith, DDS — University of Western
Ontario

Case 1

This 64-year-old caucasian female presented to her general practitioner with complaints of:

- a) chronic mandibular denture instability;
- b) dissatisfaction with her facial appearance;
- c) a long-standing history of bilateral temporomandibular joint pain.

History revealed that the patient had been totally edentulous for forty years. Clinical examination confirmed a pseudo-class III denture malocclusion secondary to over-closure; an adequate residual maxilla; and a markedly atrophic and flat mandibular alveolar ridge. Cephalometric films taken with her existing dentures in occlusion (Fig. 1) and with the dentures out and the mandible in the rest position (Fig. 2) confirmed the significant degree of over-closure. A panoramic film evidenced moderate anterior and severe posterior mandibular wasting and a good residual maxilla.

- b) an extremely low maintenance denture case requiring nothing to date other than recall assessment visits;
- c) an extremely grateful patient with a level of satisfaction that the implant team feels would have been impossible to achieve with any other treatment modality.

Treatment options discussed with the patient include:

- a) mandibular ridge augmentation with hydroxyapatite particulate graft material followed, if necessary, by a skin graft vestibuloplasty procedure;
- b) the placement of titanium implant fixtures into the anterior mandible followed by the fabrication of either a fixed or removable implant supported lower denture;
- c) either a) or b) included re-establishment, with dentures, of the patient's proper facial vertical dimension.

The patient's ultimate treatment approach was based on her desire to have a maximally stable mandibular denture at moderate cost. The placement of three titanium implant fixtures into the anterior mandible followed by the fabrication of a new complete maxillary denture and a magnetically retained mandibular overdenture (Figs. 3 & 4) to the proper facial vertical dimension have produced:

- a) a complete cessation of this patient's temporomandibular joint complaints;
- b) a vast improvement in facial appearance;
- c) a level of masticatory performance to the point where the patient manifests virtually no dietary restrictions.



Figure 5: cast bar uniting the three mandibular implants



Figure 7: Ball attachments illustrated on three mandibular implants

Case II

This 67-year-old caucasian male presented to the oral and maxillo-facial surgeon in October of 1987 requesting information about "implants". He complained bitterly of:

- a) chronic maxillary and mandibular denture instability;
- b) difficulty with mastication.

Oral and oral radiographic examination revealed an adequately sized and shaped maxillary alveolar ridge but an extremely wasted mandibular alveolar ridge. There remained anteriorly in the mandible an average of 13mm. of bone while the posterior mandibular body was reduced to a pencil-thin configuration.

Various treatment modalities were discussed with the patient including:

- a) pure augmentation of the mandibular alveolar ridge with hydroxyapatite graft material. A vestibuloplasty procedure to follow was also reviewed. Subsequently there would ensue the fabrication of new complete denture prostheses.
- b) the placement of implant screws in one or both jaws followed by the fabrication of suitable fixed or removable implant supported dentures.

The eventual treatment that is illustrated in this case consisted of:



Figure 6: mandibular denture with clips constructed to engage cast bar



Figure 8: the completed mandibular overdenture with O-ring inserts

- a) the placement of three anterior mandibular titanium implants of the Brånemark type combined with posterior mandibular alveolar ridge augmentation using hydroxyapatite graft material;
- b) the fabrication of a new complete maxillary denture and a bar-clip retained mandibular overdenture. (Fig. 5)

This treatment has achieved the following for this patient:

- a) a level of masticatory capability and performance to the point where the patient manifests virtually no dietary restrictions;

Case III

This 68-year-old caucasian female presented with a long-standing history of total edentulism of both jaws. Her presenting complaints consisted of:

- a) chronic denture instability;
 - b) intractable recurrent denture related oral ulcerations that were totally refractory to every attempt in recent years to "adjust" her dentures;
 - c) neuritic pain emanating from denture impingement in the mental nerve regions;
 - d) progressive loss of facial vertical dimension (premature aging).
- Clinical examination revealed a small

residual maxilla with particularly poor left posterior positive ridge form. The mandibular alveolar ridge was totally flat and one could easily palpate the mental nerves at the ridge crest bilaterally. Several denture sores were noted in the lower arch in various stages of healing. Cephalometric films confirmed a degree of over-closure and a pseudo-prognathic denture occlusion. The panoramic film demonstrated a moderately atrophic mandible with mental nerves exiting at the ridge crest bilaterally.

The patient would only entertain discussions regarding implant dentistry. As cost was a factor for her an implant prescription for:

- two fixtures, one each in the maxillary canine regions;
- three fixtures in the mandibular anterior;
- to be followed by the fabrication of suitable over-dentures.

At the time of the writing of this article this case has been completed to the point where the maxillary denture has been inserted awaiting the imminent uncovering of the two maxillary fixtures. This denture will then be retro-fitted over the implant abutments. The retentive capability of the two near-parallel canine fixtures has led in many of our cases to the elimination of the need for magnetic fittings.

In the mandible, the most recently introduced Brånemark O-Ring (Fig. 7) attachments have been employed to assist in retention of the complete mandibular over-denture. (Fig. 8)

This treatment approach has resulted to date in:

- almost immediate improvement in masticatory capability because of a virtually immobile mandibular denture;
- a strong desire on the part of the patient to achieve the same level of stability with the maxillary denture which in our experience will almost certainly result;
- an immediate and very gratifying improvement in facial appearance;
- elimination of all mental nerve impingement and therefore of her neuritic pain.

Case IV

This 48-year-old caucasian female first presented with denture-related complaints in April of 1982. Her complaints were those of:

- chronic mandibular denture instability;
- flabby anterior upper ridge crestal mucosa;
- significant dietary compromise;



Figure 9: post-operative panoramic radiograph following onlay iliac crest bone grafts to the mandible in 1982



Figure 11: maxillary photograph demonstrating selective pre-maxillary wasting and two Brånemark implants in canine regions

- temporomandibular joint symptoms consisting of pre-auricular joint pain bilaterally and occasional bilateral joint noise.

Clinically, in 1982 this patient was significantly over-closed with very visible soft tissue facial collapse. The maxilla appeared adequate in size although there was selective premaxillary resorption and abundant unsupported crestal mucosa. A panoramic film taken in 1982 illustrates the severe degree of mandibular wasting that was confirmed on clinical examination.

In 1982, this patient received an onlay bone graft to the mandible for alveolar ridge augmentation and underwent simultaneous excision of the redundant maxillary alveolar ridge mucosa. (Fig. 9) Wires supporting the graft were then removed subsequent to which a skin graft vestibuloplasty procedure was performed to the mandible. New maxillary and mandibular dentures were inserted that, with periodic maintenance, provided the patient with satisfactory function for 4½ years.

In September of 1987 the patient presented with renewed complaints that were virtually identical to her original list. She now sought information about "implants". A panoramic radiograph displayed complete dissolution of the onlay bone graft between 1982 and

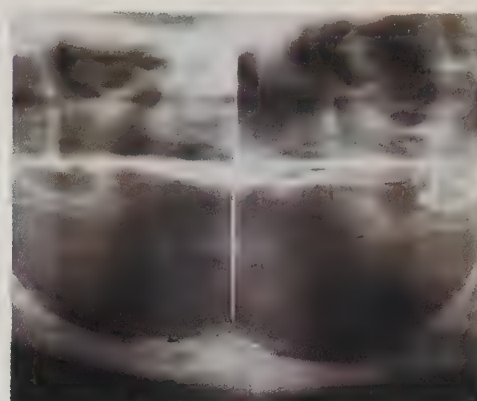


Figure 10: pre-operative panoramic film, 1987, depicting almost complete resorption of previous bone graft

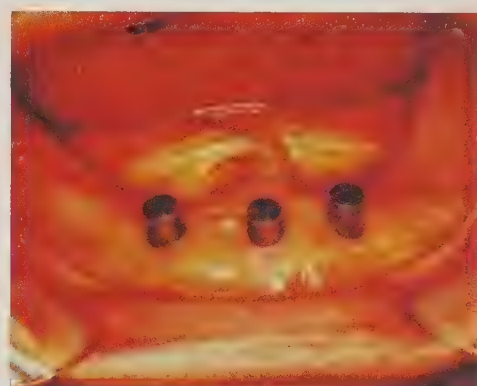


Figure 12: three Brånemark fixtures with magnetic attachments placed in previously bone grafted and skin-grafted mandible



Figure 13: the friction-retained maxillary overdenture

1987, (Fig. 10) an experience which the authors have witnessed in other similar cases.

The patient's severe and recurrent mandibular wasting plus her very compromised maxillary alveolar ridge anatomy combined with the patient's desire for maximal denture stability at minimum cost led to the following surgical-prosthetic prescription:

- the placement of two implants in the maxilla approximating the canine region utilizing nasal buttress bone in these areas; (Fig. 11)
- the placement of three mandibular Brånemark implants through the

original skin graft and into residual grafted and basal mandibular bone; (Fig. 12)

- c) the fabrication of a magnetically retained mandibular implant overdenture and friction-retained maxillary overdenture. (Fig. 13)

The patient has functioned now for 18 months with an extremely high level of chewing competence and repeatedly has expressed her amazement at the degree of stability that her implants now afford her dentures. This case illustrates that we must be prepared to review and further treat our longterm denture patients. Clearly the "state of the art" surgical procedures have progressed a great deal in the last seven years since the advent of modern, predictable and reliable implantology techniques.

Case V

This case will illustrate the management of an extremely complex clinical situation in which there existed a natural maxillary dentition functioning against an edentulous mandible in a patient with significant medical problems requiring optimum oral rehabilitation.

The patient is a 64-year-old caucasian female who first presented for evaluation in 1983. She displayed a complete maxillary dentition in reasonable health and a totally edentulous and severely atrophic mandible. Her complaints were those of:

- a) chronic mandibular denture instability totally refractory to multiple denture relining attempts;
- b) pain and frequent denture-related sores with attempts to masticate;
- c) chronic xerostomia;
- d) progressive severe weight loss making her appear virtually cachectic.

Superimposed on this patient's complicated oral state was a medical history of:

- a) asthma, emphysema and chronic obstructive pulmonary disease for which she received bronchodilator therapy and oral steroid therapy regularly. This served to increase the friability of the oral tissues and predisposed her to occasional candidal overgrowth and generalized tissue hyperemia;
- b) hypertension for which she required diuretic therapy the effect of which likely produced or significantly contributed to her xerostomia;
- c) partial gastrectomy which severely restricted her dietary intake and necessitated that she masticate foods thoroughly prior to deglutition.

The patient was initially taken to the operating theatre in October of 1983 and received mandibular alveolar ridge aug-

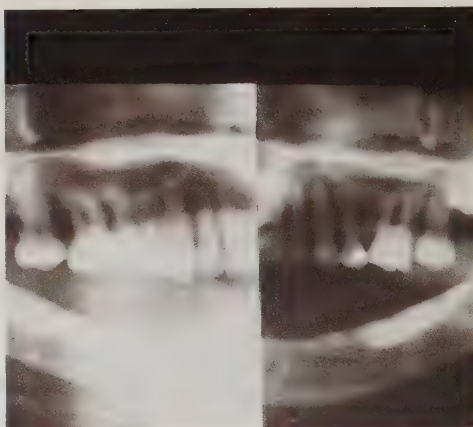


Figure 14: post-operative panoramic radiograph following mandibular ridge augmentation with hydroxyapatite graft material



Figure 16: mandibular implants in place

mentation with particulate hydroxyapatite graft material. Post-operatively, in spite of one minor post-operative infection requiring incision and drainage, she eventually received a new complete mandibular denture on what appeared to be optimum alveolar ridge form. (Fig. 14)

In August of 1988 the patient presented again for review of her masticatory status. She expressed a desire to be considered for some other modality of treatment since she continued to be plagued with persisting lower ridge pain upon chewing, frequent oral ulcers, and an inability to properly masticate her food. She found that she was swallowing large boli of food which clearly was aggravating her already very delicate gastro intestinal tract. Her only option at this point appeared to be the removal of the anterior hydroxyapatite graft material and the placement of titanium implant fixtures followed by the fabrication of a completely implant-borne full lower arch prosthesis.

The patient received five mandibular implants of the Brånemark type in December of 1988 combined with the removal of the hydroxyapatite graft material in the anterior mandibular ridge segment. (Fig. 15) All fixtures became successfully osseointegrated (Fig. 16)



Figure 15: post-operative panoramic radiograph following Brånemark fixture insertion and removal of anterior hydroxyapatite graft



Figure 17: the finished complete arch fixed lower prosthesis

and shortly after the second stage of implant surgery the final prosthesis was inserted. (Fig. 17)

The patient, through this modality of treatment, has achieved:

- a) complete resolution of mandibular tissue and ridge pain;
- b) a level of mastication which has almost totally eliminated her upper G.I. distress through, we feel, her increased chewing efficiency;
- c) an immediate significant weight gain which we will continue to monitor;
- d) a level of satisfaction with her oral state which she likens to "having her own lower teeth again".

This is truly a case with many complex elements in which it seems that the only suitable solution was that involving oral implantology.

Case VI

This represents the case of a 62-year-old caucasian female who presented for evaluation of the partially edentulous right maxilla. This segment was one of the last to be totally restored by her general practitioner following a lengthy treatment plan of multiple fixed restorations.

Her only request was that she receive nothing of a removable nature to address the missing teeth in the right maxilla. The

edentulous span between the upper right canine tooth and the upper right 3rd molar (manifesting very early bone loss and conical root form) was deemed too great for fixed bridgework. The patient was counselled as to the limitations of implant techniques in the posterior maxilla (proximity of the antrum, poor alveolar bone density) but wished to proceed with the placement of two or more osseointegrated fixtures.

The illustrations accompanying this case report demonstrate the successful placement of three fixtures of the Brånemark type into the right posterior maxilla. (Fig. 18) The most distal of these did in fact violate the antral cavity but seems to illustrate radiographically some peri-fixtural osteogenesis. (Fig. 19) The insertion of the final prosthesis (Fig. 20) was met with an extremely high level of patient acceptance and approval, has provided her now with bilateral, confident, masticatory capability and has precipitated a request for further implant dentistry in the lower left posterior quadrant to ultimately bring into function the maxillary left second molar tooth. This phase of treatment awaits completion.

Case VII

The management of a severely retrognathic 45-year-old caucasian male attempting to function with a full lower denture against an intact maxillary dentition is illustrated in this case. Since being rendered totally edentulous in the mandible in 1984, this man gave a history of multiple relines and/or remakes of his complete lower denture. He was extremely unhappy with his level of masticatory capability and requested any measures to improve the stability of his mandibular denture. Clinical examination revealed moderate anterior mandibular alveolar ridge wasting and severe posterior mandibular alveolar ridge wasting. This was also confirmed radiographically. As well, he displayed a significant antero-posterior malrelationship of the mandible to maxilla largely on the basis of A-P mandibular deficiency. (Fig. 21)

After discussing treatment plan options that included either mandibular ridge augmentation or the placement of three or more Brånemark titanium implants, with or without mandibular lengthening surgery, we eventually proceeded with the placement of five Brånemark titanium implant fixtures into the anterior mandible in October of 1988. (Figs. 22, 23, 24, 25) All fixtures achieved successful osseointegration and following an uneventful second stage surgery, a full



Figure 18: intra-operative view of right maxilla immediately following implant insertion and cover screw application and just prior to wound closure



Figure 20: the final fixed prosthesis



Figure 22: panorex showing fixtures and final prosthesis in place against natural upper dentition



Figure 24: occlusion viewed laterally



Figure 19: panoramic film depicting three Brånemark implants in the right maxilla



Figure 21: pre-operative cephalometric film showing significant mandibular retrognathia



Figure 23: occlusion viewed frontally



Figure 25: post-operative cephalometric film

arch mandibular prosthesis was inserted in June of 1989.

This case will be watched closely for any evidence of fixture compromise or failure as we have significant concerns about unfavourable loading of the implants in a case of true mandibular retrognathia functioning against a natural upper dentition. The option to surgically lengthen the mandible will remain viable for some time until the patient can demonstrate over the longterm that his occlusal forces do not compromise our prosthetic result in the mandible. The initial six months of follow-up have rendered the patient able to masticate totally free of discomfort and he currently manifests virtually no dietary restrictions.

Conclusion

Each of the prosthetic challenges illustrated in these case reports have provided

the practitioners with little alternative but to recommend implant surgery. Prior to the introduction of contemporary, proven, and predictable implant and implant-prosthetic techniques, these patients all represented the true "oral cripples" of modern dentistry. We, the authors, invite you, the readers, to educate yourselves in this current exciting modality of treatment so that you too can share in the level of satisfaction that this can bring to both your deserving patients and yourselves. Δ

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Specialty Features

Implant Introspection

An Interview with Perry Trester, DMD, FRCD(c), FADSA

In February, 1990, the 2nd Annual "Pacific Implant Symposium" was held at the Pan Pacific Hotel in Vancouver. Titled, "An In-Depth Comparison of the Major Implant Systems", the Symposium was hosted by Maple Leaf Seminars Incorporated, of Calgary.

The two-day program offered the audience of almost 200 dentists, hygienists, assistants and technicians an opportunity to make comparisons of six commonly used implant systems now available in Canada; Brånemark, Integral, Core-Vent, Anchor, IMZ and Steri-Oss.

The speakers represented a variety of disciplines; prosthodontics, periodontics, oral and maxillofacial surgery, research, and the laboratory. Of the twelve presenting clinicians, not one, left the podium without emphasizing two main aspects; implant dentistry demands meticulous attention to detail plus teamwork between all participants. Of all areas in dentistry implantology appears to be the least "forgiving".

To gain an overview of the Symposium itself and to grasp the perspective from a dentist involved with implant dentistry, the Journal spoke to Dr. Perry Trester. Dr. Trester, who presented a paper, "The Surgical Aspects of the IMZ System", practices his specialty in Vancouver. He has routinely been involved with the surgical placement of a variety of implant systems for eight years.

Dr. Trester, a 1962 graduate from the University of Manitoba Faculty of Dentistry, received graduate training in oral and maxillofacial surgery at New York University and Albert Einstein College of Medicine from 1965 and 1968.

Currently President of the College of Dental Surgeons of British Columbia Dr. Trester is a member of the Board of Governors of the Canadian Dental Association.

* * * * *

Journal: "Dr. Trester; do symposia of the type held in Vancouver serve a useful purpose? Does the audience receive a suitable overview?"

Dr. Trester: "Certainly. This Symposium was an excellent introduction to a demanding dental discipline. It is particu-



Dr. Ralph Crawford, right, CDA Journal Editor and Dr. Perry Trester, clinician at the Pacific Implant Symposium, discuss the status of implant dentistry.

larly useful for the general practitioner who is just thinking of getting into the field. For those dentists who are doing the occasional implant, this Symposium will give a better grasp of the problems involved.

I was particularly pleased to see a number of laboratory technicians present. They had a opportunity to see the clinical side of implantology and certainly we, as dentists, can always benefit when we cooperate more with our technicians. In fact the entire Symposium highlighted the inter-relationship required between all the "players" — surgeons, periodontists, restorative dentists, technicians and hygienists. That calibre of cooperation is healthy for our profession.

The specialists involved, mainly the oral maxillofacial surgeons and periodontists, can capitalize on gaining insight into various systems. But I would caution all of them to participate in more intensive courses before venturing into the "real thing".

However, I do have a word of caution about "overview" Symposiums. They should always have a balanced program. There is a danger of vested interests."

Journal: "What percentage of your practice involves implants?"

Dr. Trester: "That is difficult to say. There are three oral/maxillofacial surgeons in our practice and we've been surgically placing implants for about eight years. I would estimate about five per cent of our practice is implants. But that is increasing almost weekly."

Journal: "Did you ever place some of the earlier versions such as the "Linkow" blades?"

Dr. Trester: "We did a few many years ago but we were concerned with the mixed success of the system; although I do have one patient with a blade implant that lasted 19 years.

I might add we have had good success with the mandibular staple implant. At one time it was the only reliable implant available. However, we are doing less and less all the time as the current osseointegration techniques gain reliability."

Journal: "What about subperiosteal implants? There wasn't a great deal said about them during the Symposium. Are they still being recommended?"

Dr. Trester: "Oh yes, there is still a place for the subperiosteal, particularly in the severely resorbed maxilla. In fact, with the introduction of computer analysis there is a bit of a resurgence in the procedure. Utilizing a CT scan for the "impression" of the bone entirely eliminates one of the two previously required surgical procedures. No patient likes to undergo two surgery sessions when one will suffice.

Recent studies with hydroxyapatite coated subperiosteals looks promising. They appear to be integrating better and there is no evidence of soft tissue breaking down. We will continue looking at subperiosteals with considerable interest."

Journal: "Who should really be doing implants; the "generalist", the oral maxillofacial surgeon, the periodontist?"

Dr. Trester: "All of the above, provided they have some type of training or introduction in the area. They must have reasonable exposure to the basic principles of oral surgery and above all, recognize their own limitations. Of course that principle applies to everything we do in dentistry.

I don't want to sound prejudiced but the oral maxillofacial surgeon is more accustomed to working in the complicated areas often involved with implants. I'm thinking of the neuro-vascular bundles, sinus, floor of the mouth and nasal floors.

There is a question I would always ask of any dentist, whether general practitioner or specialist; "How many implants would you place in a month?" There is no doubt, the more often you are involved in a procedure the better you get. Some of the biggest errors seen are at the hands of the amateur or inexperienced."

Journal: "Here is a sensitive question. What about denturists? Should surgeons or periodontists be placing implants for denturists?"

Dr. Trester: "In a simple word, no. In British Columbia, and I am sure in other provinces, denturists are only allowed to place a prosthesis over intact, healthy mucosa. Denturists' interpretation of healthy versus pathologic tissue is certainly not at the knowledge level of any dentist.

Denturists have neither the background, experience or education to suitably care for the case. One of the greatest complexities in implant dentistry is the provision of the superstructure after osseointegration. Denturists just don't have sufficient

training to deal with the stresses, strains, torques and balances required in restorative dentistry."

Journal: "We see so many different systems. We understand there are almost 40 different types now being marketed in North America. In fact at this Symposium there were six. How is the dentist to know who or what is right?"

Dr. Trester: "I look at this question from two main aspects. First of all, here in Canada we are fortunate to have Health and Welfare Canada providing some control and approval. The Health Protection Branch regularly issues a list of the systems having compliance. We are further ahead than our American confreres in this regard.

Secondly, every system has some background of information in the literature. I would check the system's scientific credibility; the type of studies involved, the length of time in use and its general experience. In a word, look at the track record — the documented evidence."



Journal: "How about the patient? Is everyone a candidate?"

Dr. Trester: "Not really! Case selection is important in all dentistry but I believe even more critical for implants. Beyond the usual anatomic and systemic considerations, the patient's philosophical and psychological make-up is very important. There must a commitment to the entire procedure. Oral hygiene discipline is absolutely critical with implants.

The question lurking in the dentist's mind should be, "Why is the patient in need of an implant; what caused the loss of teeth in the first place?" Implant dentistry is no answer for the patient looking for an easy way out."

Journal: "What are the systemic contraindications for implants?"

Dr. Trester: "Not much different than for any other surgical procedure. Anything that will compromise tissue healing is a risk, for example, metabolic and nutritional diseases. As well, high risk cardiac patients may not be the ideal candidate."

Journal: "Controlled diabetes?"

Dr. Trester: "The controlled diabetic would not be a contraindication in my opinion."

Journal: "Do you require a medical physical examination for your patients before every surgical implant placement?"

Dr. Trester: "No, not for every implant. It is treated like any other oral surgery procedure. If there is a medical compromise seen or suspected we naturally confer with a physician before proceeding."

Journal: "Speaking of surgical procedures, we were interested to hear some of this Symposium's clinicians refer to what we would consider some pretty complicated surgery; invasion of the maxillary sinus and the re-location of the mandibular nerve bundle. What comments do you have?"

Dr. Trester: "For the experienced oral and maxillofacial surgeon neither of these areas are particularly "sacred". Most of us are familiar with osteotomy procedures where sinus and nerve bundles are routinely handled. Again, it is a matter of training and experience.

As for sinus involvement in implants, I recently attended a meeting of the American Association of Oral and Maxillofacial Surgeons where the sinus lift operation was discussed in detail. I was impressed. Although complicated and requiring exquisite technique, the sinus can be utilized when there is a scarcity of maxillary bone to obtain osseointegration."

Journal: "Considering some of the complexities, surgical and restorative, are implants going to be more prone to malpractice suits?"

Dr. Trester: "They don't have to be. I go back to what I have alluded to several times. It is preparation, training, experience, patient selection, knowing one's limitations and attention to detail that counts most in keeping dentists out of the courts.

I can't emphasize enough that dentists must carefully explain in detail every

phase of the treatment and be sure the patient understands and gives permission for all that is involved. Communication is critical in all dentistry but absolutely essential in implant dentistry."

Journal: "Speaking of communication, whose responsibility is it to do the communicating? We heard reference to the restorative dentist being the "quarterback"."

Dr. Trester: "When the restorative dentist is the person to whom the patient went in the first place, and is the one responsible for placing the prosthesis after osseointegration, then I can see that dentist acting as "quarterback". The main thing is to have the lines of communication working well in all directions — the patient, restorative dentist, surgeon, laboratory technician, and dental hygienist. It never hurts to also bring the patient's family into the picture.

Today oral and maxillofacial surgeons see patients coming from two main groups. There are patients from a referred source, and others who learn of implants from TV, magazines or friends. The first category pose no problem because we know there is an established practice with whom we can deal. For the other category, those who "wander in", we occasionally do the implants first and then refer, but given a choice, we prefer to work in concert with a referring office. As with so much in our profession, each case must be evaluated on its own merit — always with the patient's best interest in mind."

Journal: "What are your feelings for regulations and guidelines for implants?"

Dr. Trester: "This is always a difficult area. Regulations and guidelines usually work only as well as people want them to work. I am concerned about guidelines being promulgated by various associations and academic bodies; they run the danger of being self-serving.

On the other hand, in 1988 the National Institutes of Health in United States held a Consensus Development Conference on Dental Implants and subsequently issued an excellent unbiased summary statement. People interested in implants should read this short document.

This is an area I believe the Canadian Dental Association could play a useful role. With its national scope the CDA could organize all disciplines to participate in a National Data Centre for implant dentistry. If Canadian dentists would be prepared to cooperate we could assemble

vital information on such things as the kind of implants used, where they are placed, success rates etc."

Journal: "One final question Dr. Trester. Is not the interest in implant dentistry closely associated with what is perceived as big dollars. It's about the money!"

Dr. Trester: "I for one would hate dentists to think it's "easy money" treating implant patients. Like everything we do in dentistry, remuneration is based on experience, knowledge, complexity, time, materials and responsibility. Someone at the Symposium mentioned implant dentistry is probably the least forgiving of what we dentists do and I believe it. Done well, with the attention to detail it demands, the dentist performing implant procedures will earn every dollar received.

On the other hand, implant dentistry has come along at a time when routine dentistry is declining due to our own success story of prevention. Couple that with the tremendous advantage we now have in accomplishing treatment for the previous "dental cripple", we are winning on both fronts. Society is ultimately far better off. For the patient there is an opportunity for an enhanced quality of life. For the profession, it retains its rightful position

as a respected responsible member of a group of health care-givers." △

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Science News, Vol. 132, No. 23

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Pied Piper Syndrome — Case Report

John H. Gryfe, DDS, FRCD(C)
Weston, Ont.

Introduction

Joint mice'' are defined as ''small fibrous cartilaginous loose bodies in the synovial cavity or joint''.¹ Involvement in many different joints have been reported and the occurrence of these bodies is pathodiagnostic of synovial osteochondromatosis.² In agreement with Laerum³ who stated that ''because there are so many different types of them, rare diseases should no longer be considered uncommon''. The absence of any reports of joint mice in the temporomandibular joint should not make this article unique. Nonetheless, despite reports of temporomandibular joints in mice in the literature,⁴ a case of joint mice in a TMJ will be described.

Case History

Q. T., a 42-year-old female with a five year history of osteochondromatosis involving the left scapulo-acromial and right incustapes joints, presented with pain, locking and various noises involving the right TMJ. She stated that the key to her locking seemed to be chewing hard foods. The pain was transitory and seemed associated with various chewing manoeuvres, especially during the ingestion of crow or humble pie. The noises varied from audible cracks and crunches to squeaks and crepitus.

Clinical examination was quite remarkable. The joint appeared enlarged and lumpy, and multiple loose bodies could be palpated over the condyle during opening. Opening, however was not restricted.

While the literature usually describes these bodies as being calcified, the consistency of these encumbrances was variable. Diagnostic imaging of both joints proved to be fascinating, if not informative. The panorex was of poor quality and discarded. The transpharyngeal views when examined by the double blind technique,⁵ could be regarded as shades of grey at best. The C.T. strongly suggested the need for better interpretive software, and the MRI session removed too many of the patient's metallic restorations to be completed. On the strength of the clinical complaints, surgical investigation of the



Figure 1



Figure 2

right TMJ was accomplished through a preauricular ''hockeystick'' approach. Specifically, a number 15 blade was used to make a Victoriaville R6 incision.

Dissection was uneventful until the joint capsule was opened with a ''Gordo



Figure 3

Cooper'' manoeuvre, allowing for the extrusion of a cheesy material from the inferior compartment. Specimens of this Brie-like material were taken for culture and sensitivity. Further exploration of the joint compartments disclosed numerous

brown and white bodies, some of which felt soft and appeared to elicit short piercing noises. On observing the apparent gender of one of these soft bodies, the surgeon was heard to wonder as to what "a nice girl was doing in a joint like this". Careful debridement and repair of the joint was uneventful and the patient was symptom free when last examined one and a half years after the operative procedure.

Pathology Report

The exudate was identified as a possible domesticated version of a French provincial mould. The foreign bodies were described as "multicomponent tissues showing organized strands and sheets of calcified structures and keratin, surrounded by a hair-like epithelial structure, or covering". Although a final diagnosis could not be confirmed, the specimens, along with the clinical history, strongly suggested a diagnosis of Joint Mice. This was confirmed by the surgeon, who felt that because he had not pussy-footed around during the surgery, he obviously must have left the joint (squeaky) clean.

Recent attempts to recall the patient for further follow-up have proven to be difficult. The author feels that the patient has

undoubtedly remained symptom free because she has recently invested in a local production of the musical "Cats."

Summary

A previously unreported involvement of the temporomandibular joint in a patient with a confirmed diagnosis of synovial osteochondromatosis is described. While etiology is not addressed, suggestive explanations for the clinical symptoms and possible recurrence prevention have been expanded upon. Despite confirming evidence, the author feels that this process may have both an urban and rural manifestation. However at present, the only references have appeared in the ancient literature of Aesop⁶ and Grimm.⁷ Δ

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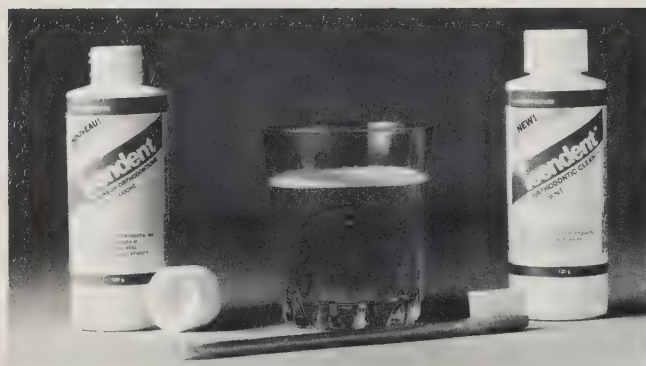
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An Update on the Human Immunodeficiency Virus and Infection Control

J. Hardie, BDS, MSc, FRCD(C)

INTRODUCTION

Although the discipline of infection control existed long before the advent of AIDS, it has, during the past decade, been difficult to discuss one topic without referring to the other. Consequently this report will highlight aspects of both subjects which may be of interest to colleagues. In so doing no attempt will be made to present a comprehensive review but rather issues will be discussed which have a direct effect upon the practice of dentistry.

AVANT-PROPOS

Bien que la réduction des dangers d'infection soit une discipline qui existait bien avant que n'apparaisse le SIDA, il a été difficile, durant la dernière décennie, de parler d'un sujet sans mentionner l'autre. Aussi ce rapport souligne-t-il pour les deux sujets des aspects susceptibles d'intéresser les collègues. Ce faisant, on ne cherchera pas à circonscrire complètement les deux sujets, mais plutôt à traiter des points qui influent directement sur l'exercice de la médecine dentaire.

HIV Infection and AIDS

HIV Infection and AIDS have been the major medical diseases of the 1980s. As of December 1989, the Canadian Federal Centre for AIDS had received reports of 3,329 cases of AIDS of which 50 had occurred in less than 15 year olds.¹ There were 1985 deaths attributed to AIDS which represents 60 per cent of the total.¹ The number of Canadians infected with the human immunodeficiency virus (HIV) is not known however this has been estimated to range from 30,000 – 100,000.² These figures suggest that HIV infection and AIDS will continue as major medical and social problems.

As early as 1983,³ it was appreciated that AIDS would have an effect on the practice of dentistry. The intervening years, as the following comments illustrate, have permitted this relationship to be better defined.



Terminology

The terms HIV infection and AIDS are not synonymous. HIV infection indicates that the individual has tested positive for the presence of the human immunodeficiency antibody ie. HIV +, and by implication has been infected with the antigen which is the HIV. Patients with an HIV infection may; be otherwise well, have transient influenza-like symptoms, have symptoms suggestive of an immunocompromised state, or become progressively immunosuppressed until they develop signs, symptoms, and diseases which satisfy the criteria for a diagnosis of AIDS. AIDS is considered to be the terminal phase of an HIV infection. All persons with AIDS probably have had an HIV infection, but the vast majority of people with HIV infection do not have AIDS.

Unless the medical diagnosis of AIDS has been confirmed it is incorrect to label individuals who are HIV+ as having AIDS. Dental staff should be aware of the sensitive nature of this terminology and not use it inappropriately.

Transmission

The HI virus is transmitted by three methods:

- sexual activity
- blood and blood products
- perinatal passage from infected mother to child

The first two methods warrant additional details. Sexual activity includes promiscuous homosexuality and heterosexual intercourse with a person at high risk. Blood and blood products imply the receipt of such items from many donors especially from those at increased risk of having an HIV infection or AIDS, or the sharing of needles and syringes containing blood as occurs among intravenous drug abusers. Persons indulging in these various behaviours are considered to be at high risk of acquiring an HIV infection.

It must be stated that neither the giving nor the receiving of dental treatment is considered to be a high risk or even moderately risky activity. In fact, acquiring an HIV infection from the accidental exposure of mucous membranes or subcutaneous tissues to contaminated blood is uncommon and the exposure could have been avoided by using simple precautions.⁴ AIDS due to occupational exposure has not been recorded in any dental health care worker.

HIV Testing

Whether testing for HIV antibody should be performed anonymously or confidentially remains a controversial issue. Dentists should be aware that the testing of a blood sample for HIV antibody is not a routine procedure. It does require the consent of the patient who must be counselled before and after the test as to the implications of the results. Unless colleagues have the experience and knowledge to perform adequately such counselling they would be advised – after obtaining the patient's permission – to communicate any concerns regarding HIV infectivity to the patient's physician who will arrange for the necessary investigations. Such an approach will generate a communication system among the involved individuals thus ensuring that the dentist

is informed of any changes in the patient's health status.

Acceptance by Dentists

Recent surveys^{5,6} indicate that although dentists have a reasonable understanding of the scientific facts associated with HIV infection and AIDS, only about one third of the respondents would be willing — without reservation — to treat patients with such conditions. This reluctance is present in spite of:

- a definite improvement in infection control procedures^{6,7}
- a consequential decreased risk of occupational exposure
- the statement by the Canadian Dental Association that: "a dentist must not refuse to treat a patient on the grounds of the patient's HIV or HBV (Hepatitis B virus) status."⁸

Among the reasons given for this reticence is the belief that private practitioners do not have the necessary dental skills to treat HIV infected and AIDS patients.⁹ A recent study by Dr. C.E. Barr and his colleagues has assisted in destroying this myth. The investigation⁹ showed that HIV infected and AIDS patients may receive general dental care including restorations, periodontics, endodontics, prosthodontics and oral surgery in an ambulatory setting with no more complications than noninfected patients. The study suggested that HIV+ patients require no more special dental skills for adequate treatment than do otherwise healthy patients.

Another barrier to the acceptance of HIV infected patients may be related to dentists' attitudes and beliefs regarding morality, sex, and behaviours which are considered non-conforming.⁶ In this respect dentists are probably no different than most members of society. Continuing education courses need to address these issues while also concentrating upon the scientific aspects of HIV infection and AIDS. In fact, proposed strengthening of Federal and Provincial Human Rights Acts to ensure that it is illegal to discriminate on the basis (real or perceived) of HIV infection or AIDS, demands that organized dentistry educate its members to be willing and comfortable about treating patients with such diseases.

Oral Manifestations

Fungal, viral, bacterial, neoplastic and idiopathic oral lesions frequently have been reported with HIV infections and AIDS.^{10,11} In 1989 Dr. Pindborg proposed a classification of such oral manifestations.¹² Although dentists should be aware of these conditions most of them

are rare, thus for this reason and for brevity only three will be discussed.

(i) Oral Candidiasis

The first reports of AIDS as a new disease complex mentioned the presence of oral candidiasis.¹³ Although it has not been studied in detail it does appear as if oral candidiasis is a common feature of HIV infection,¹⁴ indeed this fungal disease may be among the earliest clinical signs of an HIV infection. Dentists have the training, experience and equipment to examine thoroughly the oral soft tissues, therefore it is paramount that they be familiar with the four oral variants of candidiasis. These are:

- Pseudomembranous C. (Thrush) — probably the most common
- Erythematous C. (Atrophic)
- Hyperplastic C.
- Angular Cheilitis

The nature of this report does not permit a detailed clinical description of these lesions, instead readers are directed to references.^{14,15}

The other two oral conditions to be discussed are related and of recent discovery. They are HIV associated gingivitis and HIV associated periodontitis. They are highlighted because dentists have a professional obligation to diagnose and treat such diseases while recognizing that they do reflect an immunocompromised status.

(ii) HIV-Gingivitis (HIV-G)

Clinically this consists of a distinct bright redness of the free gingival margin which bleeds readily and is accompanied by small "punched-out" red lesions of the attached gingiva and adjacent alveolar mucosa.¹⁶ This gingivitis fails to respond to traditional treatments such as plaque and calculus removal, antibacterial mouthwashes, and improved oral hygiene.

(iii) HIV-Periodontitis (HIV-P)

HIV-P is a combination of HIV-G with extensive areas of soft tissue necrosis of the periodontal structures including alveolar bone. Although the periodontal attachment is lost deep pocketing does not occur because of the rapid destruction of the soft and hard periodontal tissues. HIV-P is usually painful, of rapid onset, may be localized to one or two teeth, and may produce so much soft tissue necrosis that alveolar bone is exposed and sequestered resulting in premature exfoliation of teeth.¹⁶

HIV-G and HIV-P appear to be controlled by twice daily rinsing with 15 ml of 0.12 per cent chlorhexidine gluconate solution supplemented by; improved oral hygiene, scaling and root planing, and povidine-iodine irrigation. Further information on these HIV associated dental diseases is available in references.^{16,17,18}

There are more than 30 diseases associated with HIV infection and AIDS which have oral manifestations. It should be appreciated that such diseases have been documented among the most common high risk groups ie. homosexual or bisexual males. To date, there is little information on the type of oral lesions among I.V. drug abusers, females, or children. In addition, there are few details on how such oral lesions are affected by the potent drugs used in the systemic treatment of HIV infections and AIDS. Therefore, there may be justification in establishing a national registry of oral lesions associated with HIV infection and AIDS, which would assist in defining the significance of these conditions to health practitioners.

Infection Control

The discipline of infection control has experienced a renaissance during the last decade. No doubt this was stimulated by AIDS rather than by the increasing incidence of Hepatitis-B which poses a greater risk to dental staff. Initially the revival of interest in infection control was polarized around two schools of thought. One advocated that dentistry adopt the strict protocols used in hospital operating rooms. The other was reluctant to alter the status quo believing that there was little evidence that dental treatment spread infectious diseases. As in any debate there was some validity in both arguments. Fortunately, a reiteration regarding the concepts of disease transmission combined with common sense, has permitted the development of a logical, practical, and effective method of infection control. The Canadian Dental Association (CDA) has published details regarding such an approach.¹⁹ This report will highlight some of the reasons for these CDA recommendations.

Disease Transmission

The purpose of infection control is to prevent transmission of disease. Infections are spread if the following criteria are satisfied:

- the presence of a susceptible host
- the micro-organisms must be pathogenic
- there must be a portal of entry via

which the micro-organisms invade and colonize the susceptible host.

Absence of any one of these requisites will prevent the transmission of an infectious disease. Therefore, the goal of infection control is to eliminate, one, two, or all of these criteria. As will be explained this concept is adapted readily to the dental environment.

Exposure Versus Infection

The manufacturers and distributors of dental supplies must be complimented for their awareness and promotion of infection control. However some of their advertisements are prone to hyperbole especially those which imply that exposure to a micro-organism will induce illness and untold hardship to family and patients. A few published articles have been guilty of similar exaggeration. Such misconceptions regarding exposure and infection may impart confusion.

Exposure and infection are not synonymous. It is impossible to avoid being exposed to micro-organisms, however exposure will not cause disease unless the three previously mentioned criteria are present. For example, exposure occurs when a dentist's hand touches a countertop on which there is Hepatitis B virus, but infection will not occur if any one of the following are present:

- the dentist has received the Hepatitis B vaccine and is therefore non-susceptible.
- the dentist's hand is free of wounds or lacerations or preferably gloved, so that there are no portals of entry.
- the countertop has been disinfected to reduce the amount or mass of the virus and hence its pathogenicity.

Exposure to a micro-organism does not imply automatic infection by that organism.

Surface Disinfectants

The debate continues as to what are effective surface disinfectants. It does appear that no matter what chemical is used a two-stage procedure should be employed. This involves wiping the contaminated surface with the chemical to remove visible and invisible debris, and then to repeat the procedure allowing the chemical to dry on the surface. It is most probable that the first wipe removes by friction most of the micro-organisms, and by reducing their mass decreases their pathogenicity. Perhaps it is for this reason that Dr. J. Molinari in 1988 was able to demonstrate that water is an acceptable surface disinfectant.²⁰

Dr. M. Scarlett of the U.S. Centers for Disease Control has stated that there is "hardly any epidemiological evidence

that environmental surfaces have been involved in disease transmission."²¹

There is justification for this statement if the criteria for disease transmission and the difference between exposure and infection are considered. Consequently, it is possible to advance the argument that there is minimal scientific validity for using potent chemicals as surface disinfectants.

Handpiece Sterilization

All intra-oral instruments handpieces should be sterilized prior to being used on a different patient. Although most modern handpieces are able to withstand the heat sterilization process, it does appear as if some are more durable than others. Mechanical degradation and fiber optic degradation tests have been used to determine a handpiece's ability to withstand sterilization. It would be prudent to not only ask for the results of such tests prior to purchasing a new handpiece, but to assess the sample size, the independence of the testing agency, and the method of testing. For example, how valid are the test results if a steam autoclave was used but the office has a chemiclave sterilizer?

A handpiece which according to the manufacturer cannot be sterilized, must be subjected to high level disinfection.^{19,22,23} A method for completing this has been described in a recent CDA publication.¹⁹

As soon as water is flushed through a sterilized or disinfected handpiece, the handpiece is contaminated. This is because most — if not all — dental unit water lines are contaminated with micro-organisms far beyond the handpiece.²⁴ Most likely this microbiologic invasion occurs via backflow from handpieces and air/water syringes.^{24,25} Sterilizing these instruments does not reduce the bacterial counts in the water delivered by them.²⁴ The placement of anti-retraction valves on handpieces or syringes on a used dental unit will not resolve the problem, as once contaminated the warm stagnant water in the lines becomes an ideal environment for continuing colonization by the organisms.²⁴ A 1987 study has demonstrated that this form of contamination was unlikely to cause disease unless the patient was immunocompromised ie. susceptible.²⁶ Nevertheless since the immunologic status of patients

is often not known and since a goal of infection control is to reduce the number of pathogenic micro-organisms, the dental profession should consider ways of ensuring that water delivered to a patient's mouth is, at least, as clean as domestic tap water.

Sterilization

All instruments used in and around the oral cavity capable of being heat sterilized must be so sterilized.¹⁹ As a consequence of this action sterilizers must be monitored as to their effectiveness. Details on sterilizer monitoring using biologic and process indicators are contained in the previously mentioned CDA publication.¹⁹

Waste Products

The issue of how to dispose of potentially infectious waste dental products is generating some unnecessary controversy. The CDA recommendations¹⁹ have been justified by three recent statements. The first and most significant is by the U.S. Environmental Protection Agency (E.P.A.) which states, "For waste to be infectious, it must contain pathogens with sufficient virulence and quantity so that exposure to the waste by a susceptible host could result in infectious disease."²⁷ This emphasizes the basic criteria for disease transmission mentioned earlier. The second statement is by the American Dental Association (ADA) and indicates that, "there is no epidemiologic evidence to suggest that dental office waste has caused disease in the community as a result of improper disposal."²⁷ These two concepts have allowed the ADA and the CDC to identify three wastes which require special handling because of the E.P.A.'s considerations regarding, presence of pathogens, portal of entry, and host resistance. The three wastes are:

- sharps — needles and blades
- suctioned blood and fluids
- human tissues — especially extracted teeth.

The ADA's and CDC's suggestions for the disposal of sharps and suctioned blood and fluids²⁷ are similar to CDA's recommendations.¹⁹ Although ADA and CDC indicate that extracted teeth should be incinerated or autoclaved²⁷ a simpler, more practical method is to store them in a jar of chemical sterilant, to which fresh sterilant is added along with extracted teeth. Once the jar is full the teeth may be disposed of as non-contaminated waste.

Neither the CDA nor the ADA and CDC consider used gloves, masks, cotton rolls, swabs etc., to be infectious for waste disposal purposes. The reasons being, that if

such items are handled by resistant dental staff wearing appropriate protection and then placed in garbage bags to isolate them from a susceptible public, it is difficult to envision how the three criteria for disease transmission could occur.

If the potential for waste products to cause disease is measured against the three requisites for the spread of infection, it is possible to develop sensible and practical approaches to their disposal.

Barrier Techniques

No matter how healthy and non-susceptible dental staff are, their resistance to disease is increased by wearing, when appropriate, gloves, masks, and protective eyewear.¹⁹ Recent surveys suggest that the use of such barrier techniques to protect potential portals of entry, is becoming more common,^{6,7} and may soon become accepted as one of the minimal standards for the practice of dentistry. In this regard it is noteworthy that recent graduates use such protection more frequently than more experienced practitioners.⁶ Another gratifying result is that patients do appreciate this behavioural change by dentists.²⁸

Practical Infection Control

The preceding information is of little value if it cannot be used to formulate a practical, effective, and economical infection control program for every dental office. The concept of the three criteria for disease transmission is readily adapted to the dental environment. For example, a healthy life-style combined with proper nutrition and exercise, supplemented by appropriate vaccinations (especially to Hepatitis B) helps to maintain a resistant, non-susceptible dental staff. The sterilization of instruments destroys organisms which could cause disease, while the removal of blood and other debris from operatory surfaces maintains a safe working environment. Finally the wearing of gloves, masks and eyeglasses prevents the skin of the hands, and the oral, nasal, and conjunctival mucous membranes from acting as portals of entry.

It is not possible in a written report or in a continuing education program to present a model infection control program which will be suitable for every general and specialist practice. Instead dentists should apply the knowledge of how diseases are transmitted to their type of practice. Then armed with information on preventive techniques and a measure of common sense, they should develop an infection control program designed to sterilize instruments before use, to operate in a clean environment, and to ensure

that they and their staff remain non-susceptible and resistant to disease.

Summary

This report is not an attempt to provide a comprehensive review of HIV infection, AIDS, and infection control. Rather it has highlighted some of the medical, ethical and legal aspects associated with the AIDS dilemma which are of significance to the dental profession. There would appear to be few if any valid professional reasons which a dentist may use to avoid treating an HIV infected or AIDS patient. In fact, dentists adopting such an attitude may be subject to litigation.

From a research perspective, it is feasible that continuing monitoring of the oral manifestations of AIDS and its associated diseases will contribute much information regarding the responses of the oral tissues to immunosuppression. This, in turn, may result in a better appreciation of common dental diseases especially periodontitis.

The information on infection control has emphasized how a knowledge of the basic microbiologic concepts regarding disease transmission should be used as the foundation for effective prevention of disease transmission. Δ

Requests for reprints to:
Dr. J. Hardie,
Chief, Department of Dentistry,
Ottawa Civic Hospital,
1053 Carling Avenue,
Ottawa, Ontario,
K1Y 4E9

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Localized Juvenile periodontitis: A case analysis and rational approach to treatment

Vijay K. Pruthi, DDS

Winnipeg, Man.

Jan E. Angier, DDS

Irving, Texas

Shirley C. Gelskey, Dip.DH, MPH
Winnipeg, Man.

Localized juvenile periodontitis is a disease of the periodontium characterized by a rapid loss of connective tissue attachment and alveolar bone around the permanent first molars and incisors. Two forms of juvenile periodontitis are now recognized: in the localized form, only the first molars and incisors are involved and the generalized juvenile periodontitis affects most of the teeth. The age of onset for localized juvenile periodontitis is generally around puberty (11-13 years). Females are affected more than males (3:1) and a higher incidence in black females has also been observed. There is a familial tendency in localized juvenile periodontitis which tends to follow the maternal side of the line.

The most striking feature is the lack of clinical inflammation. Minimal plaque and calculus deposits are associated with the classic form of the disease.¹ The caries rate is low,² and clinically, the gingiva appears healthy. The rate of destruction of attachment apparatus is three to five times faster than in typical adult periodontitis. The most common presenting symptoms are mobility and migration of incisors and first molars. As the disease progresses, other symptoms such as radiating pain on mastication and root surface sensitivity to thermal changes may arise. Radiographs indicate angular bone defects, principally to the first molars, and bone loss occurs bilaterally, and the two sides are generally "mirror images" of each other. Classically, an arc-shaped loss of alveolar bone extending from the distal surface of the second bicuspid to the mesial surface of the second molar is seen. In affected patients, bone resorption progresses until the teeth are treated, exfoliated or extracted.²

Immune factors have been extensively investigated and depressed neutrophil chemotaxis affects a significant percentage of patients suffering from this disease.²⁻³ The phagocytic defects in neutrophil function have also been implicated.⁴ The microbial flora of bacterial



Dr. Vijay K. Pruthi, DDS

plaque of localized juvenile patients consists mainly of gram-negative anaerobic rods. The major ones are *Actinobacillus actinomycetemcomitans* (A.a) and *Capnocytophaga*.⁵

The purpose of this article is to discuss treatment of a patient with localized juvenile periodontitis. Successful results were obtained and clinically maintained for a period of two years. Furthermore, this paper also addresses the current concept of treatment modalities of localized juvenile periodontitis.

Chief complaint

A 14-year-old hispanic female presented

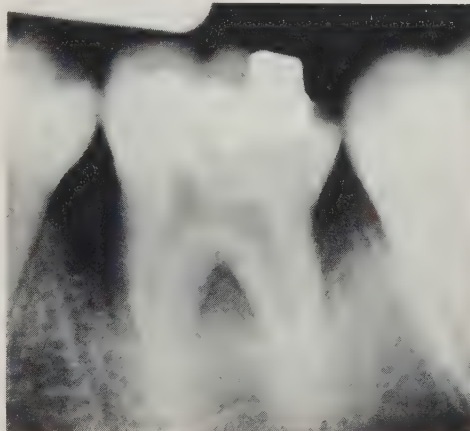


Fig. 1. Radiographic appearance of tooth #36 at the initial visit. Note the extensive alveolar bone loss mesially and suggestion of the furcation invasion.

in April 1985 with pain in the lower quadrant. An examination in the primary care clinic at the University of Texas Health Sciences Center revealed a fractured disto-occlusal amalgam on tooth #36. Excavation of the old restoration resulted in a small carious exposure. Treatment at that time consisted of a calcium hydroxide base and an IRM temporary restoration. The screening radiograph taken at that appointment revealed evidence of bone loss around tooth #36 (Fig. 1). The patient was then referred to the Graduate Periodontics Clinic by the general dentist for evaluation and treatment.

Medical History and Findings

The medical history revealed no heart problems, rheumatic fever, bleeding tendencies, renal disorders, hypertension or allergic reactions to antibiotics. The patient's history was negative for diabetes, although her grandmother has had this disease since she was in her 40s. The patient's tonsils were removed uneventfully in 1978. She gets regular annual check-ups by her pediatrician. There were no contraindications to dental and periodontal therapy.

Extra- and Intra-Oral History and Findings

The extra-oral history and clinical findings were unremarkable. The patient's dental history has been more sporadic. Her oral hygiene habits were poor and consisted of brushing once a day using a scrub technique; no dental floss was used. She did not have regular check-ups and had never been exposed to formal oral hygiene instruction. Previous dental treatment included one amalgam restoration on #36. Since she usually had no caries, her visits to the dentist were rather irregularly timed.

Periodontal Examinations

The initial appearance of the patient's mouth was deceiving because there was minimal plaque accumulation, with her

initial plaque score being less than 5 per cent. An adequate zone of keratinized gingiva was present with normal racial pigmentation. No supra- and sub-gingival calculus was noted. Mild inflammation could be seen at the distal of tooth #22 with a thin margin of reddened tissue. A slight diastema was evident between #31-41 (Fig. 2). The gingival findings included rolled margins and on careful examination, a hint of inflammation was evident by slightly erythematous gingival margins at both maxillary and mandibular first molars. Lingual views of the maxillary and mandibular right sextants gave a somewhat better indication of the presence of inflammation. The gingival margins at the first molars were slightly edematous and the zone of inflammation appeared to spread in an apical direction as noted by the slightly reddened tissue. Tissue height was slightly coronal to CEJ, being most pronounced at the second molar. Lingual views of the maxillary and mandibular left sextants showed a consistent pattern with that of the right side in tissue height, consistency and degree of inflammation. Bleeding on probing could be easily elicited at all first molars and at #22. Full mouth bleeding score at initial exam was 18 per cent. However, if only the involved teeth (first molars and #22) were counted, the bleeding index was 86 per cent. Probing depths ranged from 1 to 8 mm. A grade 1 furcation was present on the buccal of #16, 26, and lingual of 36 and 46.

Teeth and Occlusal Examination

The patient had a full complement of teeth with the exception of the unerupted third molars and #32, which was congenitally missing (Fig. 2). She had only one amalgam restoration, on #36, and had no caries. Centric occlusion showed an Angle Class 1 molar relationship with a midline discrepancy of approximately 1 mm.

Radiographic Evaluation

Radiographs showed bone loss of the mesial of #16, 26, 36 and 46. Radiographic appearances were mirror images to one another among maxillary first molars in both the arches (Figs. 3, 4, 5). Radiographs of the upper anteriors suggested only slight horizontal bone loss at #22. There was no bone loss on the lower anteriors.

Diagnosis, Etiology and Prognosis

Based on the patient's age plus the clinical and radiographic findings, a diagnosis



Fig. 2. The pre-treatment clinical appearance. There is minimal clinical inflammation. Note lack of calculus and plaque deposits and the apparently healthy gingival tissues. A slight diastema between teeth #31 and #41 is also seen.



Fig. 3. Pre-treatment radiograph. Note the mesial osseous defect associated with maxillary right first molar.



Fig. 4. Lesions of the maxillary left first molar displaying deep mesial defect at pre-treatment.



Fig. 5. Radiograph of tooth #46 before treatment.

of localized juvenile periodontitis was made. Consistent with previously pub-

lished descriptions of LJP, the amount of periodontal destruction was out of proportion to visible plaque.⁵⁻⁸ Recent studies indicate a clear association between LJP and certain gram negative anaerobic and microaerophilic organisms. Therefore, microbiological sampling was done on this patient and *Actinobacillus actinomycetemcomitans* and black pigmented *Bacteroides* were isolated. In the past, the prognosis following treatment of LJP has been unpredictable. This may have been due in part to poor understanding of the dynamics of the disease. Based on the current concepts of etiology and treatment, the short-term (5 years) prognosis of the involved teeth in this case was thought to be good.⁶ The long-term prognosis for the involved teeth was guarded. This guarded prognosis was in part due to the severity of destruction in such a young person and the unknown factor of long-term follow-up care in a dental school setting. Additional uncertainty came from the fact that long-term evaluation of recent treatment modalities was not then available.

Treatment

The treatment plan was based on an attempt to address the etiology of the disease. With a clear clinical and microbiological diagnosis, it was decided to treat this case based on current published therapeutic guidelines for LJP.⁵⁻⁸ A growing volume of evidence suggests that LJP cases with advanced bone loss do not respond predictably to only scaling and root planing, and these patients respond better to treatment with tetracycline and periodontal flap surgery.^{6,7} With this in mind, surgical therapy in conjunction with 1 gram of tetracycline per day for 21 days was planned. Tetracycline therapy was initiated one day prior to the first surgery, and surgery dates were timed to allow for continuation of antibiotics for seven days after surgery was completed. The disease process was explained to the patient and her mother, and the need for full cooperation was emphasized. Oral hygiene instructions using the Modified Bass Technique and floss were instituted prior to surgery to aid in post-surgical healing and maintenance.

Periodontal Surgical Treatment

The goal of surgical treatment was to gain access to the osseous defects and remove the chronically inflamed granulomatous tissue. All surgical sites were treated essentially the same.

Maxillary and Mandibular Right Sextants

Sulcular incisions with elevation of full thickness mucoperiosteal flaps were performed. The extension of the flaps from the second molars through the premolars area was made to allow access to the involved teeth. Tissues were left intact in all but the involved areas in an attempt to preserve prior attachment levels. Granulomatous tissues were meticulously removed from the osseous defects. Some instrumentation of root surfaces did take place, although an intentional root planing was not performed. The consistency of the tissue removed from the defects was soft with little or no integrity. Examination of the bone showed the following: On the upper right, the osseous defect had a one-wall component on the palatal. No osseous contouring was performed due to the reported healing response in JLP cases and the potential for osseous fill (Fig. 6). In addition, the buccal of #16 had a grade 1 furcation invasion. On the lower right, a trough-type defect extended from the mesial around to the lingual exposing the furcation, and into the distal. (Fig. 7) Bone loss on the buccal was slight and essentially horizontal. The flaps were sutured at their original height in an attempt to facilitate new attachment (Fig. 8). A periodontal dressing was not placed. Postoperative analgesics consisted of Dolobid 500 mg. every 10-12 hours as needed for pain and post-operative instructions were given.

Maxillary and Mandibular Left Sextants

On the maxillary left, initial incisions were made from second molar to the distal of the first bicuspid with the idea of treating the lesion at #22 separately. Due to access requirements, it was decided to extend the incision mesial to #22 in the full flap design. The flap was elevated in the vicinity of #22 only enough to gain access between 22 and 23 interproximally. Bone loss at 22 and 23 was mild and of a horizontal nature. The osseous defect at #26 was similar to that of #16 with a one wall component extending from mesial to buccal to distal and exposing the buccal furcation (Fig. 9). Palatally, horizontal bone loss was minimal. On the mandibular left, the incisions extended from the second molar to the premolar area. After flap reflection and degranulation, a trough-like defect similar to that seen on the mandibular right side was evident. The one-wall component extended from mesial to lingual to distal exposing the lingual furcation (Fig. 10).

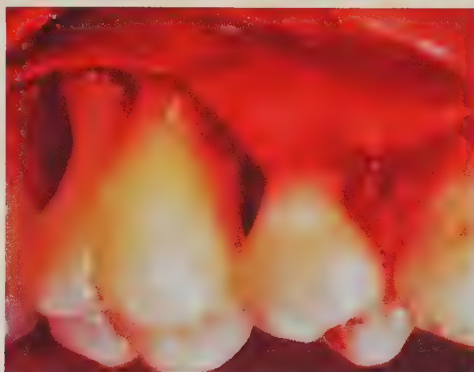


Fig. 6. This illustrates the site specificity of LJP. Tooth #16 was involved circumferentially, while #17 and #15 were unaffected by the disease process.



Fig. 8. Surgical site of the maxillary and mandibular right posterior region immediately after flap suturing.



Fig. 10. Periodontal flap elevation in mandibular left region. Note trough-like osseous defect similar to that seen on mandibular right side lingually.

No osseous contouring was performed. Once again, flaps were sutured at their original height. Post-surgical follow-up at one-week intervals was done for one month. Postoperative care consisted of light scaling and polishing along with oral hygiene instructions using an interproximal brush. The recall interval was extended to monthly visits for the first three months and then on a three-month recall schedule.

Post-treatment evaluation

Following completion of active therapy, the periodontium remained stable. In general, the tissue's colour, consistency and appearance were healthy. In the anterior, the tissue height and appear-



Fig. 7. Surgical site of mandibular right posterior region, displaying a trough-type of osseous defect around tooth #46 lingually.



Fig. 9. Surgical site of maxillary left posterior region, depicting osseous defect at #26—a "mirror image" of tooth #16.



Fig. 11 and 12. At six-month post-treatment. Slight loss of tissue height and shallow soft tissue defects were seen interproximally on all first molars. No bleeding was observed on probing.



ance remained essentially the same as pre-treatment with the exception of the resolution of inflammation at tooth #22. There was slight loss of tissue height and no bleeding on probing was detected on

any of the first molars (Figs. 11 and 12). Probing depths on all the surgical sites were reduced to 2-3 mm., some of which was achieved by recession. Restorative plans for tooth #36 (which was the patient's chief complaint) did not proceed uneventfully. At the time that an amalgam restoration was initiated, pin placement resulted in pulpal involvement and the patient was waiting for endodontic therapy to be completed on that tooth.

Periodontal maintenance visits at 90-day intervals were followed for approximately two years and no teeth were lost. The purpose of these visits was to monitor progress, to maintain and motivate personal prevention, to identify sites of recurrent disease, and to institute therapy when necessary. Thus maintenance therapy included oral hygiene assessment, probing, evaluation of occlusion, mobility, and scaling and root planing.

Discussion

This case demonstrates that an excellent result can be achieved and maintained following combined periodontal and tetracycline therapy in conjunction with regular recalls in patients with localized juvenile periodontitis. The results of this case report are consistent with previous studies.⁵⁻¹⁰ Recent additional knowledge about the disease has led to a more rational and predictable approach to the treatment of localized juvenile periodontitis, a condition which for many years was considered to have a hopeless prognosis.¹¹⁻¹³ Thus, a patient with this disease need not be given a hopeless prognosis, but can indeed be treated with the prospect of a good result. In the past, the understanding of the etiology was uncertain, and consequently, a variety of therapeutic approaches were proposed for the treatment of this disease. These included strategic extractions, scaling and root planing, full thickness flap debridement, root amputation, autologous third molar transplantations into first molar sockets, hip marrow grafts, autogenous bone grafts, crown reduction to promote passive tooth eruption, dietary alterations, orthodontics, and fixed splinting.¹⁴⁻²³

More recently, the microbiology of localized juvenile periodontitis has been extensively studied, and *Actinobacillus actinomycetemcomitans* has been implicated in its etiology.^{11,12,24,25} This organism possesses numerous virulent factors, which may be relevant to periodontal disease. These include a potent endotoxin,²⁶ a polymorphonuclear leukocyte chemotaxis inhibiting factor,²⁷ a leukotoxin,²⁸ a soluble extract which can alter human

lymphocyte function,²⁹ a fibroblast inhibiting factor,³⁰ and bone resorption toxin. This organism can also resist the bactericidal effect of complement activated human serum.³¹ Furthermore, *Actinobacillus actinomycetemcomitans* is considered to be an opportunistic human pathogen that can also cause extra-oral infections³² including bacterial endocarditis;³²⁻³⁴ abscesses of the face,³² brain,³³ and thyroid gland,³⁵ urinary tract infections;³⁶ meningitis;³² and vertebral osteomyelitis.³⁷

Since localized juvenile periodontitis is caused by specific microbiota, treatment should be directed towards the elimination of the causative pathogens. The goal of the therapy should be geared to eliminating *Actinobacillus actinomycetemcomitans* and to replacing it with a favorable microbial flora. Unlike chronic adult periodontitis, scaling and root planing alone has been found to be ineffective for substantial suppression of subgingival microflora in localized juvenile periodontitis.⁵⁻⁸ One possible reason for the failure of scaling and root planing alone in this disease is the evidence that the causative organisms, in addition to residing on the tooth surface, may attach to periodontal pocket epithelium³⁸ or invade the gingival connective tissue.^{12,39,40} Thus, the bacteria may rapidly repopulate the periodontal pocket area following root debridement. On the other hand, periodontal treatment that includes surgical removal of infected gingival tissue and soft tissue of the bony defects can remove not only *Actinobacillus actinomycetemcomitans* significantly, but also inflammatory cell infiltrate with large numbers of plasma cells and blast cells which might interfere with bone regeneration and healing.⁶ However, the predictability in eradicating subgingival suspected periodontal pathogens by surgical means does not appear to be as high as that achieved by using systemic tetracycline therapy.⁷ Therefore, treatment should include an appropriate course of tetracycline therapy in conjunction with periodontal flap surgery.^{6,9,10} The susceptibility of most strains of *Actinobacillus actinomycetemcomitans* to tetracycline is well documented.^{41,42} Tetracycline has low toxicity and high activity *in vitro* against suspected principal periodontopathic microorganisms including *Actinobacillus actinomycetemcomitans*⁴³ and capnocytophaga.⁴⁴ It also has a high concentration in gingival crevicular fluid.⁴⁵ In clinical trials, penicillin has been ineffective as an adjunct to the treatment of localized juvenile periodontitis,⁴⁶ and metronidazole has been ineffective against *Actinobacillus actinomycetem-*

comitans in vitro.⁴⁷ In addition, insufficient information exists to properly evaluate other antibiotics, such as spiramycin.⁴⁸ Therefore, in light of current information, tetracycline and minocycline appear to be the antibiotics of choice in the treatment of localized juvenile periodontitis.^{5-9,49}

Lindhe and Liljenberg⁶ reported a five-year study with successful healing in LJP cases using a combined approach of flap surgery and tetracycline therapy. Other investigators⁵⁰⁻⁵⁴ have also reported success with open (surgical) curettage and replaced flaps coupled with the use of systemic antibiotics. Based on the current data, it is suggested that systemic tetracycline therapy for localized juvenile periodontitis should be administered for a continuous three-week regimen of 1 gram per day in conjunction with periodontal flap surgery for adequate healing results.^{9,10} Furthermore, in cases where first molar teeth are considered hopeless and are to be extracted, two opinions are available: 1) orthodontic repositioning of second and third molars;^{22,23} and 2) transplantation of the third molars to the first molar site, provided the third molar is in the correct stage of root development.^{20,21,55} However, with advances in alternative forms of therapy, it would seem prudent to reserve tooth transplant treatment for carefully selected cases.⁴⁹

Summary

This case involves a 14-year-old female patient affected with localized juvenile periodontitis. Treatment consisted of periodontal flap surgery in conjunction with tetracycline therapy. A successful result was obtained and maintained. The case depicts the fact that in many instances localized juvenile periodontitis can be treated with confidence and a high degree of predictability. It should also be noted that, like all treatment modalities, the treatment of this disease as discussed in this case is not the panacea and will undergo considerable changes in the future; however, in light of current knowledge, this combined treatment approach appears to be effective in LJP patients. Δ

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Dr. Pruthi is Associate Professor and Head of Periodontology, Department of Stomatology, Faculty of Dentistry, University of Manitoba. 780 Bannatyne Ave., Winnipeg, Man. R3E 0W2.

Dr. Angier is a practicing Periodontist, Irving, Texas.

Reprint requests to Dr. Pruthi.

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Les soins dentaires pour la personne handicapée

Sylvie Tétreault, MSc, erg.

Professeure assistante

Pavillon Comtois, Université Laval

Sainte-Foy, G1K 7P4

Anne Fortin, BA, Susan Sutton, BSc

étudiantes, Programme d'ergothérapie

SOMMAIRE

La santé dentaire revêt une importance grandissante chez la population québécoise. Cependant, il apparaît que chez la personne handicapée les soins préventifs et curatifs demeurent négligés. Le présent article vise à faire ressortir les facteurs entraînant cette négligence dentaire et les rôles du dentiste auprès de la personne handicapée. Une approche particulière de cette clientèle est suggérée à la fin.

ABSTRACT

The dental care of handicapped person is often neglected and many reasons can explain this situation. The purpose of this article is to show factors causing dental deterioration of this particular group and to highlight the special role of the dentist. A new approach to dental care for the handicapped person is proposed.

Introduction

La personne ayant un handicap physique, intellectuel ou sensoriel est de plus en plus présente dans la société. Un effort important a débuté dans les années '70 pour favoriser son intégration soit à la garderie, à l'école, au travail, dans les loisirs et la communauté. Également, une somme considérable d'énergie et d'argent est investie pour le maintien à domicile de la personne handicapée. Avec le phénomène actuel de désinstitutionnalisation, l'individu vivant un handicap se doit d'être le plus autonome possible pour mieux vivre son quotidien. Cette lutte, pour atteindre l'autonomie, laisse souvent peu de temps ou d'intérêt pour les soins dentaires.

Négligence des soins dentaires

À ce propos, Albino, Schwartz, Golberg et Stern (1979) mentionnent que l'incidence cariogène est augmentée chez la personne handicapée. Levine, Bullen et Maltz (1976) identifient deux raisons principales pour expliquer cette situation soit un manque d'implication de la part des professionnels auprès de cette clientèle et une lacune au niveau de l'information sur l'importance de soins dentaires journaliers.

D'autres éléments peuvent contribuer

aux problèmes dentaires comme un apport nutritionnel réduit, une médication abondante ou une diète alimentaire molle, ce qui diminue la stimulation orale interne.

La présence de désordres physiologiques comme la spasticité, l'incoordination motrice ou des tremblements font qu'il devient souvent difficile pour la personne de se brosser elle-même les dents ou de recevoir efficacement des techniques d'hygiène dentaire. L'individu handicapé doit donc compter sur son entourage pour ses soins dentaires. Cette dépendance n'est pas toujours bénéfique car souvent peu sensibilisés, les parents ne perçoivent pas toujours l'hygiène buccale comme quelque chose d'important. L'ignorance des techniques adaptées de brossage de dents constitue un autre facteur expliquant cette situation (Glazzard et Sword, 1976).

Des expériences antérieures pénibles et douloureuses chez le dentiste entraînent une diminution de la coopération de la part de la personne handicapée. D'ailleurs, Albino et ses collègues (1979) mentionnent que les traitements dentaires se font à l'occasion avec des contraintes physiques, l'utilisation d'une médication amenant une sédation ou tout simplement sous anesthésie générale. Pas étonnant que l'extraction demeure quelquefois la dernière solution possible face à l'état dentaire de la personne. La présence de déficience intellectuelle et de trouble de comportement chez l'individu sont aussi d'autres éléments qui restreignent la collaboration avec le dentiste ou tout autre intervenant (Kavanagh, 1982).

Il apparaît clairement que plusieurs facteurs contribuent à entraîner une détérioration de la santé dentaire chez la personne handicapée. Mais une des raisons principales concerne la difficulté à trouver un dentiste qui accepte de travailler avec celle-là (Kavanagh, 1982). Le dentiste se sent inconfortable devant la personne et il arrive qu'il ne veuille pas dépenser de l'énergie et du temps supplémentaire pour ce client (Price, 1980).

Même si le dentiste est prêt à collaborer, il faut que l'édifice et le bureau soient accessibles à la personne se mobilisant en fauteuil roulant. La non-accessibilité débute souvent à l'aire de stationnement

inappropriée et s'étend jusqu'au niveau des instruments du dentiste (Bromer, 1979). De plus, il arrive que le transport adapté soit non-disponible à l'heure du rendez-vous ou tout simplement inexistant dans la municipalité.

La difficulté à bénéficier de soins chez le dentiste peut être accentuée par le fait d'être un enfant handicapé, une personne non orale ou ayant des pertes importantes d'autonomie. Une fois rendu dans le cabinet du dentiste, le transfert du fauteuil roulant à la chaise peut devenir une expérience traumatisante pour tous. Ces éléments rassemblés peuvent expliquer en partie pourquoi il y a négligence au niveau de la santé dentaire de la part de la personne handicapée.

Rôles des intervenants

Le dentiste a cependant un rôle-clé à jouer à l'intérieur de cette situation. Au cours de leur formation, les étudiants en médecine dentaire abordent peu la situation particulière de la personne handicapée. Ils ont une connaissance partielle des problèmes reliés à chacun des handicaps.

Ainsi, un dentiste non averti pourrait interpréter des mouvements involontaires de fermeture de la bouche par une personne ayant une infirmité motrice cérébrale comme un manque de coopération ou un indice de peur. Cette méconnaissance peut entraîner une image faussée de la personne handicapée. Par exemple, la personne qui présente un problème de communication orale peut être perçue à tort comme présentant un handicap intellectuel. C'est pour éviter des expériences désagréables autant pour le client que pour le dentiste qu'une sensibilisation et qu'une meilleure connaissance de la personne vivant un handicap se doivent d'être entreprises. Une approche multidisciplinaire devrait être favorisée dès le départ. Plusieurs professionnels et particulièrement l'ergothérapeute, sont habilités à travailler avec la personne handicapée. L'ergothérapeute par ses connaissances du handicap, des besoins et des limites de l'individu vivant un handicap est bien placé pour jouer plusieurs rôles au niveau de la santé dentaire. Il peut aider le dentiste à mieux répondre aux demandes spécifiques de la personne handicapée.

Ainsi, le dentiste qui désire travailler auprès de la personne handicapée avec la collaboration de l'ergothérapeute considérera certains points essentiels, soit: de favoriser une meilleure accessibilité physique des lieux, de connaître les différents modes de transfert, d'identifier quel type de positionnement est le plus fonctionnel, d'utiliser des aides techniques extrabuccales et intrabuccales pouvant faciliter le travail. Enfin, une approche particulière de la personne handicapée reste à préconiser.

Accessibilité physique des lieux

Tout dentiste devrait tenir compte de l'accessibilité physique de son cabinet pour la clientèle handicapée. Bromer (1979) tout comme Berberi et ses collègues (1982) suggèrent qu'idéalement les recommandations suivantes soient respectées:

- une aire de stationnement réservée au transport adapté;
- un trottoir bas et égal;
- une entrée accessible au moyen d'une rampe avec une pente d'au moins 1,25 m de largeur pour les fauteuils roulants, une surface non glissante et d'un garde-fou;
- un seuil bien éclairé et n'excédant pas 1,3 cm de hauteur;
- un essuie-pieds à l'entrée du bureau bien fixé au plancher;
- des portes légères qui s'ouvrent et se referment facilement;
- des tapis à poils courts et fixés au sol;
- un ascenseur assez large avec un tableau de contrôle accessible à la personne handicapée en fauteuil roulant si celle-ci doit l'utiliser;
- des portes de toilette qui s'ouvrent vers l'extérieur et des barres d'appui dans les toilettes. Également, les loquets doivent être faciles à manipuler pour les personnes ayant des problèmes de motricité;
- un lavabo permettant un accès facile à la personne en fauteuil roulant;
- dans la salle d'attente, des chaises ni trop basses ni trop profondes;
- la porte pour accéder au cabinet du dentiste doit être assez large (au moins 0,81 m);
- il doit y avoir assez d'espace à côté de la chaise du dentiste pour que le fauteuil roulant puisse y être placé, afin de favoriser le transfert.

L'ergothérapeute est apte à évaluer l'édifice et le milieu de travail du dentiste et lui recommander des modifications à faire pour le rendre accessible à la personne handicapée. Elle connaît les différents organismes subventionnaires qui

peuvent contribuer à une partie des coûts occasionnés par ce réaménagement.

Techniques de transfert

Il s'avère essentiel de demander au client la façon dont il exécute habituellement ses transferts. Cette procédure peut simplifier les manoeuvres de transfert.

Il est important que le dentiste et son personnel soient sensibilisés au fait qu'une bonne technique de transfert ne fait pas que faciliter l'accès à la chaise du dentiste. Elle peut également être un facteur sécurisant pour la personne handicapée et lui éviter, de même qu'au personnel, des blessures et des douleurs.

Cependant, voici trois techniques de transfert décrites par Posnick et Martin (1977):

- A) Pour le patient mobile, c'est-à-dire peut faire une mise en charge sur ses membres inférieurs:
- le fauteuil roulant est placé à un angle de 30° avec la chaise du dentiste;
 - les freins sont mis sur le fauteuil roulant;
 - les sièges du fauteuil et de la chaise sont à la même hauteur;
 - le bras de la chaise du dentiste est relevé;
 - la personne place son pied entre les deux pieds du patient (point d'appui important) ce qui amène une position de pivot;
 - il place ses mains sous les bras du patient et le relève de son fauteuil;
 - ensemble, ils pivotent;
 - le patient est assis sur la chaise et l'opérateur lui relève les jambes;
 - pour le retour dans le fauteuil, la procédure est inversée.
- B) Pour le patient immobile:
- le fauteuil roulant est parallèle à la chaise du dentiste;
 - les freins sont mis;
 - le bras de la chaise est relevé et celui du fauteuil roulant enlevé;
 - un opérateur en face du patient place ses mains sous les genoux de celui-ci, l'autre opérateur derrière le patient passe ses bras sous les aisselles;
 - la main gauche de l'opérateur qui est en arrière, prend le bras droit du patient et la main droite, le bras gauche du patient;

- avec un effort commun, le patient est soulevé et placé sur la chaise;
- la procédure inverse est faite pour le retour au fauteuil roulant.

- C) Pour le patient pouvant se servir d'une planche de transfert:
- le fauteuil roulant est placé à un angle de 30° de la chaise;
 - les freins sont mis;
 - les sièges sont à la même hauteur;
 - le bras du fauteuil roulant est enlevé et celui de la chaise relevé;
 - la planche est placée sous les fesses du patient et s'étend du fauteuil à la chaise;
 - le patient s'y glisse pour transférer;
 - la procédure inverse est appliquée pour le retour au fauteuil roulant.

Positionnement sur la chaise du dentiste

Un bon positionnement est un pré-requis nécessaire pour faciliter la tâche du dentiste et pour diminuer les mouvements involontaires du patient. Il permet également le support, le confort et la sécurité de la personne handicapée, ce qui peut améliorer la coopération de celle-ci. Albertson (1974) et Kavanagh (1982) proposent:

- de trouver la position la plus appropriée pour chacun. La position, favorisée en général, est celle où le patient est incliné à l'horizontale avec les pieds légèrement plus élevés que la tête. Une attention doit être portée au fait qu'une position en décubitus dorsal trop prononcée risque d'augmenter la spasticité. De plus, dans le cas des patients présentant des contractures aux membres, les supports tels que coussins, couvertures roulées sont importants pour l'appui des parties du corps non soutenues;
- de songer à redresser le patient qui s'étouffe facilement car cela peut augmenter les spasmes.

L'utilisation de courroie, ceinture ou couverture isolante demeure possible à condition d'expliquer au patient leurs fonctions. Ces agents restrictifs peuvent même, dans certains cas, favoriser l'inhibition de mouvements involontaires. Cependant, il faut toujours vérifier la présence de rougeur ou d'inconfort sur les membres.

Aides techniques extrabuccales

Des aides techniques extrabuccales sont parfois nécessaires pour stabiliser la tête, le tronc et les membres chez les personnes ayant un manque de contrôle dans leurs mouvements. Ces aides techniques peuvent être:

- des attaches fixes à la chaise et mobiles du côté du transfert;
- une enveloppe spéciale ou un tablier de plomb qui stabilise tout le corps;
- un stabilisateur de tête.

Aides techniques intrabuccales

Certaines aides techniques intrabuccales ont pour fonction de garder la bouche ouverte et prévenir la fermeture involontaire des mâchoires. Elles peuvent être très utiles en particulier chez les spastiques et les athétoides. Selon Glazzard et Sword (1976), le dentiste peut utiliser:

- des pinces recourbées avec des bandes de caoutchouc aux extrémités;
- de petits blocs de caoutchouc ou bouchons de liège retenus par un fil;
- plusieurs abaisse-langues retenus ensemble par un ruban adhésif;
- un dé à coudre recouvert de caoutchouc et dans lequel le dentiste met son doigt;
- un miroir buccal incassable.

Une autre aide technique qui facilite également la tâche du dentiste:

- la digue de caoutchouc qui isole la zone de travail du dentiste et empêche ainsi la langue hypermobile d'y avoir accès.

Il faut noter que tous les petits objets tels les rouleaux de coton et les bagues, susceptibles de se déloger et d'être avalés, devraient être retenus par un fil de soie par exemple.

Approche particulière face à la personne handicapée

Une modification de l'intervention traditionnelle de la part du dentiste face à la personne handicapée permettra d'établir des liens plus harmonieux, diminuera le stress et par conséquent, facilitera le traitement dentaire.

Pour Glazzard et Sword (1976) ainsi que Hengen (1980), il s'avère essentiel d'identifier le moment de la journée le plus favorable pour prendre un rendez-vous, c'est-à-dire de sélectionner une période où le dentiste peut prendre le temps nécessaire à la consultation. Il faut éviter les périodes d'achalandage ou de fin de journée. Une flexibilité d'horaire de la part du praticien peut être nécessaire.

Une atmosphère relaxante est préconisée. Si la personne handicapée présente une nervosité extrême, il faut tenter de la rassurer par une communication claire et exempte de termes trop compliqués. La démystification des actes du dentiste peut se faire grâce à des explications précises.

Également, l'utilisation de modèles plastiques représentant les dents permet à l'individu de mieux visualiser ce qui va se passer. Une présentation des instruments accompagnés du bruit qu'ils pro-

duisent peut aider à diminuer la tension. La manipulation des instruments est également possible.

D'autres moyens peuvent être essayés pour favoriser la relaxation. En dépit de certains effets secondaires, Kavanagh (1982) suggère une prémédication qui entraîne un état plus calme et une diminution des spasmes. De plus, l'utilisation d'une chaise berçante dans la salle d'attente peut être préconisée. Il est connu que les stimulations vestibulaires lentes provenant de bercements procurent une inhibition des mouvements involontaires et favorisent la relaxation (Ayres, 1979; Bright, Bittick et Fleeman, 1981). Naturellement, le dentiste explique les différentes étapes de son intervention. Les parents ou une personne significative peuvent être invités à assister au traitement.

Le dentiste doit s'informer s'il y a des conditions associées à l'handicap, comme des problèmes visuels ou auditifs, la présence d'épilepsie ou d'étourdissement.

Si la personne ne peut communiquer oralement, il faut vérifier la présence d'un autre système de communication soit sous forme de tableau (alphabet, Bliss, Image, . . .) ou d'appareil électronique (synthétiseur de voix, mini-dactylo, . . .).

Enfin, le dentiste devrait évaluer dans le futur les possibilités de services à domicile. Avec le vieillissement de la population et l'intégration grandissante des personnes handicapées dans la communauté, ce type d'intervention faciliterait l'accès aux soins dentaires et permettrait à des individus ayant une mobilité réduite de recevoir des soins dentaires appropriés. Il faudrait évaluer les possibilités d'utiliser un équipement facile à transporter (Dane, 1990).

Toutes ces suggestions ont pour objectif d'améliorer le contact du dentiste avec la clientèle handicapée. Ainsi, l'hygiène dentaire de ces personnes se doit de devenir un champ d'intérêts à développer pour le dentiste.

Conclusion

Une bonne hygiène dentaire est très importante pour la personne handicapée car elle lui permet d'améliorer son image sociale. De plus, l'indépendance et les acquisitions gagnées à ce niveau, tout en augmentant l'estime de soi, peuvent l'amener à développer d'autres performances dans d'autres domaines. Les chances de succès du programme seront

d'autant plus grandes si l'individu a déjà une bonne adaptation sociale, ce qui a une influence sur la maturité émotionnelle, l'indépendance et la vulnérabilité au stress.

Le succès du programme d'amélioration des soins dentaires dépend aussi, dans une large mesure, de la communication qui s'établit entre le dentiste et le patient. De plus, il est indispensable que le dentiste comprenne ou puisse prévoir les réactions émotionnelles du patient. L'approche multidisciplinaire s'avère un moyen de mieux répondre à tous les besoins de la personne handicapée.

Il ne faut pas oublier qu'il faut prendre le temps nécessaire pour modifier la perception et la nécessité d'une bonne hygiène dentaire chez les personnes concernées. La motivation est donc primordiale et nécessite un support constant. Ainsi, pour que l'hygiène dentaire chez la personne handicapée prenne une place davantage prépondérante, il faut d'abord axer les interventions sur la sensibilisation de toutes les personnes impliquées. Δ

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Acute Chest Pain During Dental Treatment — A case report —

E.R. Young, BSc, DDS, BScD, MSc, FADSA
Assistant Professor of Anaesthesia, Faculty of Dentistry,
University of Toronto, and the Wellesley Hospital, Toronto

M.A. Saso, DDS
Junior Resident, Department of Anaesthesia, Faculty of Dentistry,
University of Toronto
E. Pulver, BSc, DDS
Dental Intern, Mount Sinai Hospital, Toronto,
University of Toronto

ABSTRACT

Acute chest pain is one of the most common and potentially serious medical emergencies seen in hospital emergency departments. Because the elderly population is generally living to an older age, is more ambulatory, and is seeking more sophisticated dental care, an acute episode of chest pain in the dental office is a potential possibility. This paper will discuss a typical case report with emphasis not only on prevention, but on a step-by-step method for stabilizing any emergency situation that may occur in the dental environment.

Key words: Chest pain, angina, emergency, stabilization, nitroglycerin

SOMMAIRE

Les douleurs thoraciques aiguës sont parmi les urgences médicales les plus fréquentes que les services d'urgence des hôpitaux ont à traiter et elles peuvent être sérieuses. Parce que les personnes âgées vivent en général à un âge de plus en plus avancé, qu'elles sont plus actives et qu'elles demandent des soins dentaires plus complexes, il peut très bien arriver qu'elles éprouvent des douleurs thoraciques aiguës lors d'une visite chez le dentiste. Cet article présente un cas typique et le commente en expliquant point par point non seulement les mesures préventives, mais aussi une méthode pour stabiliser tout cas d'urgence qui pourrait se déclarer au cabinet.

Introduction

The majority of medical emergencies in the dental office can actually be **PREVENTED** by the dentist taking a thorough medical history, supplemented by baseline vital signs, including blood

pressure and pulse, a cursory physical examination of the patient, and by the proper adjustment of drug dosages, on the basis of medical history, age, weight and concurrent drug administration. A consultation with the patient's physician may also be desirable. The proper use of conscious sedation to relieve stress may also be a useful part of effective patient management. This Case Report discusses an elderly patient who experienced acute chest pain during undergraduate dental treatment at the Faculty of Dentistry, University of Toronto, and its subsequent management and follow-up. We will also discuss the concept of "acute chest pain" as well as a general approach to the management of any in-office medical emergency.

Case Report

A 77-year-old male presented to the Faculty of Dentistry for routine dental care. On physical examination, he appeared healthy with a preoperative blood pressure of 130/85, a pulse rate of 72 beats per minute, with a regular rhythm and full volume. His present state of health was good and his past medical history was non-contributory. He stated that he exercised vigorously and took long walks for 30 minutes each day without shortness of breath or chest pain. This indicated good exercise tolerance. His social and family history did not indicate any particular risk factors which may predispose him to cardiovascular disease.

The patient was scheduled for an afternoon restorative dental appointment and received a left-side mandibular block plus buccal infiltration (total 2.8 ml) with 2 per cent lidocaine (Xylocaine) with epinephrine 1:100,000. At about one hour post-injection, he complained of discomfort from the dental procedure. The patient quickly became markedly anxious and restless, appeared pale and exhibited diaphoresis (sweating). He complained

of deep mid-sternal chest "tightness". Dental treatment immediately ceased; the patient was placed in a semi-seated position (Fowler) and 100 per cent oxygen at a rate of six litres/minute was administered. His pulse was 90 beats per minute and remained regular, but his blood pressure was elevated to 187/115. Within five minutes following emergency intervention, his blood pressure was 180/100 and chest pain had decreased. At no time was there radiation of pain or nausea, although respiration rate initially increased. Within 10 minutes from the onset of symptoms, the chest pain had resolved and blood pressure had returned to baseline levels. The patient was referred to his physician who was concerned enough to refer him to a cardiologist. A 12-lead ECG proved negative, except for evidence of left anterior hemiblock. Anterior hemiblock describes a conduction block of the anterior division of the left bundle branch, causing delay in depolarization to that area (anterior, lateral and superior) of the left ventricle. It is usually caused by myocardial infarction or ischemic coronary artery disease.¹ Subsequent exercise stress testing and thallium scan were essentially negative for coronary artery disease. Echocardiography, angiography and chest x-ray were unfortunately not done.

Subsequent dental treatment was successfully carried out as if this was an "at-risk" cardiac patient, as outlined in Table 1.

Discussion

Assuming that the dentist is **Prepared** to deal with the in-office medical emergency and has **Recognized** the existence of an emergency situation, the protocol for handling any medical emergency in the dental office is the same — that is, the **Initiation of Stabilization** at the scene. The steps involved in **Initiation of Stabilization** are outlined in Table 2.

In the case of acute chest pain, the actual diagnosis usually follows the stabilization steps listed in **Table 2** and may, in fact, be made only after the patient has been admitted to hospital. It should be noted that there is no single pathognomonic physical finding that will immediately tell us if chest pain is of ischemic origin or not.² Indeed, many patients presenting to hospital emergency departments with chest pain may be inappropriately sent home.² Finally, not all laboratory studies (ECG, thallium scan, etc.) reliably indicate whether chest pain is of ischemic or non ischemic origin^{1,2,3}. Because of this potential confusion, all acute chest pain in the dental office should be assumed to be of ischemic origin. If the chest pain is not relieved by the maneuvers suggested in **Table 2**, prompt medical referral must be initiated.

It should be noted that chest pain is not always of cardiac origin and may, in fact, originate from any structure innervated by the T₁ – T₆ nerve roots – The Six

TABLE 1
Protocol for Management of the Cardiac-Risk Dental Patient

Pre-Operative Considerations

- Establish good patient rapport
- Consultation with the patient's physician, if deemed necessary
- A thorough medical history with base-line blood pressure and pulse
- Shortened appointments, preferably in the morning when physiologic reserve is highest
- Prophylactic nitroglycerin 0.3 mg sublingual tablet; 1-2 minutes prior to the appointment
- Proper positioning — modified Fowler position may be most comfortable for the patient
- Conscious sedation to relieve stress — N₂O/O₂ is ideal, in that it also supplies supplemental oxygen, helping optimize the myocardial oxygen supply: demand ratio (**Table 5**)
- Keep the dental operator environment **CALM!**

Intra-Operative Considerations

- Aspirate prior to injecting local anaesthetics
- Profound local anaesthesia
- *Maximum Epinephrine* 0.04 mg 1:200,000 solution means 1000 mg epinephrine per 200,000 ml of solution. Thus, 1 dental cartridge (1.8 ml) of a 1:200,000 solution contains about 0.01 mg of epinephrine.
- *Monitor* blood pressure and pulse every 5 minutes

Dermatone Band (**Table 3**). The Six Dermatome Band covers most of the thorax from the neck to below the xiphoid process and down the anteromedial aspect of the arm and forearm. Sensory pathways, particularly from the viscera of this entire region are so connected axially that stimulation of any part can produce the same patterns of chest pain.⁴ Although pain arising from peripheral structures within the six Dermatome Band may cause this pattern of chest pain, it usually

tends to be more localized and of a more stabbing nature, often with increased severity with inspiration than chest pain of myocardial ischemia origin.^{2,4} The pattern and frequency of chest pain is important. A history of increasing frequency, duration and severity of chest pain may indicate unstable angina. These patients should be referred for medical evaluation prior to any dental treatment.
Chest pain of ischemic cardiac origin is typically described as a *Continuous*,

TABLE 2
Steps Involved in the Initiation of Stabilization for Any In-Office Medical Emergency

STEPS	Comments
Stop what you are doing	• Stop all dentistry, remove all instruments from the oral cavity and suction it; • Establish patient responsiveness and calmly reassure him
A — The Airway must be opened	• Basic head tilt — chin lift and jaw thrust maneuvers are generally satisfactory if the patient is unable to maintain his own airway. Adjunctive airway devices may be useful in some cases.
B — Breathing is monitored	• The apneic patient should be given mouth-to-mouth ventilations according to current CPR standards.
C — Circulation is monitored	• This involves monitoring the carotid pulse as to rate, rhythm and volume. • If no pulse is palpable, manual chest compressions should be initiated at once. Blood pressure should be monitored as well. • While blood pressure is important, signs of adequate circulation or tissue blood <i>Flow</i> (peripheral perfusion) are even more important. These can be monitored by noting the patient's skin colour and temperature, mental status, capillary refill, and the volume of the peripheral pulses. • EGG monitoring, if available, may be very useful.
Proper patient Positioning	• The patient should in most cases be positioned with the upper body flat so that respirations are not restricted and the legs elevated to encourage venous Return back to the heart. • The acute cardiovascular or respiratory emergency is often better managed in the modified Fowler position, that is, the legs flat and the upper body sitting upright. If blood pressure falls significantly, however (i.e. the signs of poor peripheral perfusion are evident), the legs may have to be elevated to encourage venous return.
Oxygen	• All patients who are spontaneously breathing should be given 100 per cent oxygen by face mask.
Relief of chest pain	• This can often be accomplished by stopping dental treatment, proper patient positioning, reassuring the patient, and administration of 100 per cent oxygen. • Sublingual nitroglycerin (three 0.3 mg sublingual tablets spaced over a 10-minute period) or up to 50 per cent N₂O plus oxygen can also be used in the dental office. • Although generally outside the realm of the general dentist, 2 mg increments of morphine intravenously titrated to the relief of chest pain may be useful.
Venous Access	• Only when the basic steps listed above can be taken over <i>adequately</i>, should the dentist attempt to set up an intravenous infusion. This would serve to expand the intravascular volume and also serve as a route for further drug administration.
Activate the Emergency Medical Services (E.M.S.)	• call 911

Mid-Sternal, Deep, Crushing, or Tight pain which may **Radiate** particularly to the left side of the mandible, arm, throat, neck or abdomen. It is frequently accompanied by signs of **Sympathomimetic Overactivity** such as restlessness, nausea, pallor, unstable blood pressure and irregular pulse. Pain of angina rarely lasts longer than ten minutes, and is usually relieved by rest and/or nitroglycerin. Many episodes, however, may be silent and painless, particularly in the patient with CAN (cardiac autonomic neuropathy) such as the diabetic.^{2,4,5} When chest pain of ischemic origin is present, there is frequently a **Precipitating Factor** such as emotional or physical stress, and pain is classically **Relieved** by rest or when anxiety is reduced.

Because not all chest pain is of cardiac origin, the American Heart Association has set out several important guidelines when dealing with the patient experiencing chest pain.⁶ For example, in the case of the patient who has **no previous history** of cardiac disease, the EMS should be activated within two minutes following the onset of symptoms. The second guideline states that the patient who is experiencing acute chest pain and who has a **known history** of cardiac disease, can be given a trial of three sublingual nitroglycerin tablets (0.3 mg tablets) spaced over a 10-minute period before the EMS is activated. In all instances, the basic steps of stabilization, as outlined in **Table 1** must be instituted until emergency help arrives.

The dental patient who, on the basis of his medical history, and/or physical examination, appears to be at risk, may benefit from shortened dental appointments, the use of conscious sedation, profound local anaesthesia, reduction of epinephrine, careful aspiration prior to injection, and perhaps prophylactic nitroglycerin (an 0.3 mg sublingual tablet) several minutes before starting the dental procedure (**Table 1**). It should be cautioned that the use of nitroglycerin, either prophylactically or for the treatment of acute ischemic cardiac pain, may cause significant hypotension, requiring emergency intervention with elevation of the legs to encourage venous return. An undesirable compensatory tachycardia may also be noted. Headache and flushing of the face are also common due to the venodilatory properties of nitroglycerin. **Table 4** lists some of the major pharmacologic effects of nitroglycerin.

Three useful “Rules of Thumb” have been stated with respect to the use of nitroglycerin.^{4,6} These are:

TABLE 3

Structures Innervated by the Six Dermatome Band Which May Present as Acute Chest Pain^{2,4}

Peripheral Structures	• usually of musculoskeletal and chest wall origin • intercostal muscle spasm • xiphisternal arthritis • periostitis • costochondritis • neuralgia
Cardiovascular System	• angina pectoris or one of its variants (coronary artery spasm) • acute myocardial infarction • dissecting aortic aneurysm • pericarditis • mitral valve prolapse • congenital coronary anomalies
Respiratory System	• pulmonary embolus and/or infarction • pleuritis
Gastrointestinal System	• diffuse esophageal spasm (cardiospasm) or Achalasia • esophageal diverticulum • gastritis • subphrenic disease • spasm or diseases of the peripheral diaphragm
Anxiety — Induced	• globus hystericus • hyperventilation
Others	• mediastinal tumours (lymph nodes, goitre, thymoma) • cocaine, oral contraceptives • trauma • systemic disease

- 1) If the patient manifests flushing and a headache with the use of nitroglycerin, but no relief of chest pain, the pain is probably not angina.
- 2) Nitroglycerin that is clinically active should produce a slight sublingual

TABLE 4

The Systemic Actions of Nitroglycerin

Early moderate systemic arteriolar dilatation (after-load reduction)
Venodilatation and peripheral blood pooling (preload reduction)
Decreased myocardial wall tension
Coronary vasodilatation, especially of collateral vessels to ischemic areas
Reduction in left ventricular end-diastolic pressure this helps improve sub-endocardial blood flow; i.e., an improved transmural pressure gradient
Improved myocardial oxygen supply/oxygen demand ratio
Increased intracranial blood flow (headache)
Hypotension (primarily a fall in systolic blood pressure rather than diastolic pressure)
Reflex tachycardia
Rarely, methemoglobinemia

- “stinging” sensation. Once a bottle of nitroglycerin tablets has been opened and the tablets exposed to light and air, they become quickly less efficacious (within six months).
- 3) If three sublingual nitroglycerin (0.3 mg) tablets have been used over a ten-minute period, without relief of chest pain, then the chest pain should be assumed to be due to myocardial infarction until proven otherwise.

This patient, despite his non-contributory medical history, was at increased risk for coronary artery disease on the basis of his advanced age alone. Chronologic age is by itself a significant risk factor in patients greater than 77 years.⁵ Furthermore, it has been estimated that at least 50 per cent of the adult population, 70 years of age and older, have significant coronary artery disease, whether or not they are symptomatic.⁷ This is particularly evident in males.^{2,6,7}

While the epinephrine dose used in this case (0.02 mg) was well below the frequently-quoted maximum allowable per appointment dose for the controlled cardiovascular patient (0.04 mg)^{8,9,10,11} there are several studies that indicate that in some patients, even doses of this magnitude may elicit undesirable cardiovas-

cular responses.^{12,13} The fact that chest pain occurred a considerable time after the initial injection, suggests that exogenous epinephrine probably did not play a significant role. The inadequate pain control during dental treatment that was seen in this case, may indeed have caused endogenous catecholamine release which may have resulted in inotropic and chronotropic effects as well as increased peripheral vasoconstriction, both of which may have upset an otherwise tenuous myocardial oxygen supply/oxygen demand balance (Table 5), hence triggering an acute myocardial ischemic episode. At the time of chest pain, it was noted that the patient's blood pressure was markedly elevated. It is not known, however, whether his chest pain reflexly triggered the hypertension, or whether the oral discomfort caused his elevated blood pressure which then caused his chest pain.

Summary

This case discusses an episode of acute chest pain, possibly of ischemic origin, which occurred during dental treatment. The patient has subsequently been successfully treated as a "cardiovascular risk" patient utilizing the treatment modification protocol shown in Table 1. This paper also reviews some of the considerations to be followed for any medical emergency in the dental office setting, with particular emphasis on those situations which manifest as acute chest pain. Δ

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TABLE 5

Factors affecting the myocardial oxygen supply: demand ratio in the patient who is at risk; it is important to maximize the supply while minimizing factors which increase the myocardial oxygen demand

Supply	Demand
• Hemoglobin concentration • Inspired oxygen concentration • Diastolic blood pressure • Diastolic filling time • Health of the coronary blood vessels • Left ventricular end diastolic pressure • Cardiac output	• Cardiac contractility • Myocardial wall tension (preload and afterload) • Heart rate

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June 2-4: XI^{èmes} Journées françaises de Parodontologie in Cannes, France. Contact: Dr. Catherine Mattout, 21 rue Sylvabelle, 13006 Marseille, France.

June 6-13: American Dental Hygienists Association in San Antonio, TX. Contact: Ms. Kathy Gallagher, 444 N Michigan Ave, Suite 3400, Alexandria, VA 22305, USA.

June 10-13: Alberta Dental Association Convention in Kananaskis. "Start the 90's with a Kananaskis High". For registration, contact: Dr. R.T. Huff, 131 Woodvalley Dr SW, Calgary, ALTA T2W 5Y2.

June 11-14: Karlstad, Sweden: 2nd International Conference on Preventive Dentistry and Epidemiology: Mrs. Ann Johnson, Landslugsulveckling AB, Ostra Torggatan 19, Sweden.

June 14-15: Fundamentals of Orofacial Myology with Marvin L. Hanson in Ottawa. Contact: Barbara Okun, Dept of Speech and Language Disorders, Ottawa Civic Hospital, 1053 Carling Ave, Ottawa, Ont K1Y 4E9. Tel: (613) 761-4722.

June 14-16: 9th Symposium on Sports Dentistry at the Cleveland Clinic. For information, contact: Dr. Ed Whitman, 3609 Par E, #201N, Cleveland, OH 44122. Phone (216) 831-2991.

June 16: Columbia University Dental School Announces: "Periodontal Disease: Recent Developments in Diagnostic Techniques, Chemotherapy, and Surgical Treatment" presented by Gerard Epelbaum, MD, DDS. For more information contact: Ms. Judith Blazer, Director of continuing Education, 60 Haven Avenue, Suite 21E, New York City, New York USA 10032. Tel: (212) 305-2132.

June 18-24: National Association of Dental Laboratories in San Diego. Contact: Ms. Audrey Calomino, 3801 Mt Vernon Ave, Alexandria, VA 22305, USA.

June 19-22: 96th Annual Meeting of the American Dental Society of Europe in St. Andrews, Scotland. Contact: Dr. Clive Debenham, American Dental Society of Europe, 1 Harley St, London W1N 1DA, England.

June 22-25: Eighteenth Annual Convention of the International Association of Orofacial Myology. Management of Oral Myofunctional Disorders. Minneapolis, Minnesota. Contact: Gayle Snyder (408) 997-2432.

June 25-29: 81st Annual Conference of the Canadian Public Health Association in Toronto. Contact: CPHA, 1565 Carling Ave, Suite 400, Ottawa, Ont K1Z 8R1. Tel: (613) 725-3769.

June 27-July 1: Dental Manufacturers of American, Inc. Contact: Ms. Kathleen A. LeMar, 1118 Land Title Bldg, Philadelphia, PA 19110, USA.

June 28-30: BC Dental Meeting, Vancouver Trade & Convention Centre. For information contact: College of Dental Surgeons of British Columbia, 500-1765 West 8th Avenue, Vancouver, BC, V6J 5C6. Tel: (604) 736-3621.

June 28-30: Steri-Oss Schedules Workshop in Hawaii: A three-day "Steri-Oss" Education/Vacation that will take the practitioner through each step of dental implant treatment at the Hyatt Regency Hotel on Maui. Registration information is available by calling Steri-Oss, an affiliate of Denar Corp., at 800-854-931 or 714/776-9000, ext. 308.

June 28-30: Florida National Dental Congress. For more information, contact: Betty Waggener, Director, Florida National Dental Congress, 3021 Swann Ave, Tampa, FL 33609. Tel: (813) 877-7597.

June 28-30: Sri Lanka Dental Association International Congress at the Hotel Hilton in Colombo, Sri Lanka. For information, contact: Secretary, Organizing Committee, Sri Lanka Dental Association, Professional Centre, 275/75 Baudhaloka Mawatha, Colombo 07, Sri Lanka.

June 28-30: 5th Annual Society for Oral Oncology Conference in Orlando, Florida. For more information, contact: Dr. Ronald A. Baughman, Chairman, Dept of

Oral Medicine, Univ of Florida College of Dentistry, Box J 414, Gainesville, FL 32610. (904) 392-2508.

June 30-July 7: Bermuda Dental Association Convention For travel and registration information, contact: Dr. Bob Brandon, 85 Lonsdale Dr, London, ONT N6G 1T4 (519) 657-3368.

July/Juillet 1990

July 2-5: 5th Biennial Congress of the International Association of Oral Pathologists in Tokyo, Japan. Contact: Dr. Tetsuo Ishiki, Niigata University, 2 Gakko-cho, Niigata #951, Japan.

July 6-7: Special Care in Dentistry: in London International College of Dentists, Federation of Special Care in Dentistry (USA) in London. Contact: Dr. B.D. Glynn, 35 Devonshire PL, London, W1N 1PE, England.

July 11-14: 37th Annual Congress of the European Organization for Caries Research in Ljubljana, Yugoslavia. For details, contact: Dr. V. Vrbic, University klicny Ctr. Ljubljana, Mrvatski TRG 6, Y-61000, Ljubljana, Yugoslavia.

July 13-19: Academy of General Dentistry Contact: Ms. Debbie Jepsen, 211 E Chicago Ave, Suite 1200, Chicago, IL 60611, USA.

August/Août 1990

August: Annual Congress of International Association of Dental Students in Puerto Rico. Contact: The Secretary, International Association of Dental Students, c/o Fédération dentaire internationale, 64 Wimpole St, London, W1M 8AL, England.

August 24-28: 15th Biennial Conference of the New Zealand Dental Association in Dunedin, New Zealand. For information, contact: Conference Secretary, PO Box 647, Dunedin, New Zealand.

August 25: International College of Dentists, Canadian Section - Annual Meeting Convocation: The Chateau Laurier Hotel, Ottawa, Ontario. Editor, N. Murnoe, 203-333 Bayview Ave., Willowdale, Ont. M2K 1G4.

August 25-28: Congress of the Association of Dental Education in Europe in Budapest, Hungary. For details, contact: Prof. Jolan Banoczy, Mikszath K ter 5, H-1088 Budapest, Hungary.

August 25-29: Canadian Dental Association, Annual Convention: Ottawa, Ontario, Canada (English and French). Contact: Dr. Michel Jahjah, General Chairman, CDA Conventions, 1815 Alta Vista Drive, Ottawa, Ontario K1G 3V6. (613) 523-1770 FAX: (613) 523-7736.

September/Septembre 1990

September: Annual Conference of the European Prosthodontic Association/Dutch Society of Prosthetic Dentistry in the Netherlands. Contact: Prof H. de Koomen, ACTA, Postbus 7161, 1007 MC Amsterdam, The Netherlands.

September 2-6: 10th Congress of the International Association of Dentistry for the Handicapped in Nice. Contact: Prof J.R. Jasmin, Université de Nice, UFR Odontologie, Faculté de Chirurgie dentaire, av Joseph Vallot, Parc Valrose, 06034 Nice, France.

September 5-7: 7th Biennial Congress of the International Academy of Gnathology (Asian Section) in Singapore. Contact: The Secretariat, IAG-7th Annual Congress, Communication International Assoc Pte Ltd, 450 Alexandra Rd, #10-00 Inchape House, Singapore 0511

September 6-7: Federation of Prosthodontic Organizations Contact: Mr. Peter C. Goulding, 211 E Chicago Ave, Suite 948, Chicago, IL 60611, USA.

September 8-14: 78th Annual World Dental Congress in Singapore. Contact: Fédération dentaire internationale, 64 Wimpole St, London W1M 8AL, England.

September 10-14: 10th Congress of the European Association for Cranio-Maxillo-facial Surgery in Brussels. Contact: Mrs. H. van Leemputten, rue Joseph Stallaert 28, B-1180 Brussels, Belgium.

September 12-15: dentchnica 90 and the 10th International Congress of Dental Technicians in Cologne, Germany. For information, write: Verband Deutscher Zahntechniker-Innungen, Ilkenhansstraße 6, D-6000 Frankfurt 50, West Germany.

September 13-16: The Canadian Academy of Endodontics in conjunction with The College of Dental Surgeons of Saskatchewan present SEPTEMBER-FEST in Saskatoon - Ramada Renaissance Hotel, Saskatoon, Saskatchewan. For more information contact: Dr. Paul Teplitsky, Dental Clinic, University of Saskatchewan, Saskatoon, SK. S7N 0W0. Tel: (306) 966-5089.

September 13-16: American Academy of Orthodontics for the General Practitioner in Stevens Point, WI. Contact: Ms. Janes Taylor, 3953 N 76th, Milwaukee, WI 53222, USA.

September 16-20: New Zealand Association of Orthodontists, Queenstown, New Zealand: Dr. P.G. Gilbert, P.O. Box 5217, Dunedin, New Zealand.

September 17-20: 4th Meeting of International Academy of Periodontology in Istanbul. Contact: Mr. M. Midda, University of Bristol, Dental School and Hospital, Lower Maudlin St, Bristol BS1 2LY, England.

September 27-29: 41st Annual New Orleans Dental Conference Contact: Ms. Norma Ward, New Orleans Dental Conference, Suite 119, 3101 W Napoleon Ave, Metairie, LA 70001, USA.

September 27-30: 108th Annual Session of the American Dental Trade Association in Hilton Head, South Carolina. Contact: Mr. Nikolaj Petrovic, American Dental Trade Association, 4222 King St, Alexandria, VA 22302, USA.

October/Octobre 1990

October 1: Winnipeg Dental Society sponsored course: "Aerobics Program For the Total Well-Being" by Dr. Ken Cooper. Registration Fee \$75. Contact: Dr. Philip Poon 942-2438.

October 1-5: Annual Conference of the Canadian Society of Forensic Science in Ottawa. Deadline for scientific papers is June 1/90. For further information, please contact: Canadian Society of Forensic Science, Suite 215, 2660 Southvale Cres, Ottawa, Ont K1B 4W5. Tel: (613) 731-2096.

October 7-8: American Board of Oral & Maxillofacial Radiology 1990 Certifying Examination in Boston, MA. Applications must be submitted by March 1, 1990. For further information or application forms, please contact: Dr. Axel Ruprecht, University of Iowa, College of Dentistry, DSB S-356, Iowa City, IA 52242-0101.

October 10-13: 53rd Annual Session of the American Association of Public Health Dentistry Deadline for abstracts April 1/90. Send abstracts to: Alice M. Horowitz, 6307 Herkos Crt, Bethesda, MD 20817 USA.

October 11-14: London, Ontario. Annual Meeting of the Canadian pain society (IASP Chapter). Contact: Ms. Inese Kramins, Local Arrangements committee, Department of Psychology, University of Western Ontario, London, Ontario, N6A 5C2, Canada.

October 13-16: 131st Annual Session of the American Dental Association in Boston. Contact: Office of International Affairs, American Dental Association, 211 E. Chicago Ave, Chicago, IL 60611, USA.

November/Novembre 1990

November 13-18: American Dental Association: 131st Annual Session will be held in Boston, Massachusetts. For further information, write the Council on ADA Sessions and International Relations, American Dental Associations, 211 East Chicago Avenue, Chicago, Illinois 60611, USA.

November 22: Toronto Academy of Dentistry, 53rd Annual Winter Clinic, Metropolitan Toronto Convention Centre, 255 Front Street West, Toronto, Ontario. For information contact the Academy of Dentistry at (416) 967-5649.

Offices and Practices

BRITISH COLUMBIA—Duncan: One of the four fastest growing areas of BC. 4th plumbed with G.E. Panelips. Large waiting room, consult room. Six years on computer. N₂O₂. Downtown location 40 minutes from Victoria. Call (604) 748-3687 weekdays, evenings.

BRITISH COLUMBIA—Central Interior: 10-year-old general practice for sale. Office is 5 years old. 1500 sq ft, 4 operatories, room for 5th. Full-time hygienist. High gross on 35 hr work week. Suitable for experienced dentist or two new graduates. Please reply to CDA Box 2472.

BRITISH COLUMBIA—Coquitlam: For sale. 15-year-old, busy, family practice in developing suburban area. Easy access to Vancouver (25 minutes drive). High gross, low overhead. Providing all phases of dentistry. 3 fully-equipped operatories. 725 sq. ft. in bright, centrally air conditioned office. Large, separate store room. Independent evaluation available. Phone: Bus.: (604) 936-8114 or Res.: (604) 464-5134.

BRITISH COLUMBIA—Gulf Islands: PRACTICE FOR SALE. Growing family practice in the Gulf Islands. Call (604) 537-4935.

BRITISH COLUMBIA—Pender Harbour: FOR SALE. Busy part-time general practice for sale on beautiful Sunshine Coast. Two hours travel time from Vancouver. Strong recall/maintenance program and good new patient growth. Ideal for new grad or for a working retirement. Call after 7 pm. Dr. Dan Kingsbury at (604) 886-4535.

BRITISH COLUMBIA—South Surrey: 25 year active-quality family practice. Attractive office. Shares common spaces with 4 other dentists. In the fastest-growing suburb of Vancouver. This is an excellent opportunity. B.A. Matthews (604) 291-2971.

BRITISH COLUMBIA—North Vancouver: Excellent starter practice. Tastefully decorated 4 operator office with N₂O (Nitrous Oxide). Prime location in North Vancouver B.C. Please inquire P.O. Box 86701, North Vancouver, BC V7L 4L2.

BRITISH COLUMBIA—Vancouver: FOR SALE — Old established general practice. Located in centre of City. 3 ops with principal dentist and one full-time associate. Well-organized office with experienced staff. Call (604) 876-2820.

BRITISH COLUMBIA—Vancouver: WANTED to purchase a retirement-type practice. Patient base to support, 3 days a week. Reply to CDA Box 2488.

BRITISH COLUMBIA—Vancouver: Enjoy the great West Coast lifestyle! Very busy, growing family practice for sale. High gross, 28 hour work week, shared office for great net. 3 modern, equipped operatories, with ceiling tv's, Exan computer system for 5 years. Not inexpensive, but worth it! Serious calls only please. (604) 494-4303.

BRITISH COLUMBIA—Vancouver: Well-established practice for sale, professional building, city and mountain view. Six operatories. Opportunity for experienced practitioner with associate or two graduates to take over well functioning and profitable office. Owner wishes retirement but he and associate can stay on for smooth transition. Call evenings: (604) 922-0657.

BRITISH COLUMBIA—Vancouver Suburb: Practice for sale. Busy, family practice established more than 15 years. Attractive office, recently relocated to new building with good exposure, 3 ops of new equipment. Principal dentist and one associate. Well-organized office, very-experienced staff who completely manage the practice. Phone: (604) 531-7688 (evenings).

BRITISH COLUMBIA—Victoria and Gulf Islands: Something different. 2 days a week in a children's hospital in Victoria. One day on each of two beautiful Gulf Islands. Great life-style, low overhead, interesting work at a reasonable pace. Good gross. Call evenings, (604) 652-4970.

BRITISH COLUMBIA—Victoria: PRACTICE FOR SALE. Reasonably priced. Please reply CDA Box #2490.

BRITISH COLUMBIA—Victoria: Long-established, low-overhead, two-chair family practice. Centrally located in classic Heritage building. Preventative orientation. Healthy gross. Current owner operates 4 days/week, but work load could be reduced or intensified as good growth potential exists. Modern Space-line equipment. Excellent starter practice in a highly desirable area. Phone evenings, Fridays and weekends (604) 370-2806.

ALBERTA—Calgary: FOR SALE. 1/4 share in three year old expanding dental practice. High traffic mall location. Shared reception area with busy medical clinic. Floor to ceiling windows in all operatories. Three operatories fully equipped, two more plumbed. **Owner leaving Calgary.** (403) 933-2000, Monday to Friday, 8:30 to 5:00.

ALBERTA—Edmonton: Practice for Sale. Excellent opportunity for established dentists or new graduates. Modern, 5-operator general practice located in downtown professional building. Phone (403) 422-2783 (days), (403) 467-6887 (after 6 pm).

ALBERTA—Fairview: Dentists urgently required to take over well-established 2-man practice in Med/Dent bldg in progressive community. 900 sq ft, newly renovated, 3 operatories, patient records, leasehold improvements and considerable equipment included at no additional cost. Other equipment available from recent estate. Experienced staff, heavy patient load with corresponding income. Dr. M. Woronuk, 14328 - 63 Ave, Edmonton T6H 1S4. Ph (403) 435-0048 or 835-2455.

ALBERTA—Medicine Hat: Share in extremely busy 2-man family practice. High profile, state-of-the-art equipment, unique features. High annual billings. 8000 plus patient charts. 6 operatories. 2000 sq ft. Reply in confidence to CDA Box 2476.

SASKATCHEWAN: Very busy, family-oriented practice for sale or associateship leading to purchase in small Saskatchewan city. Four fully-equipped operatories, including panelipse. Large patient base makes it suitable for 2 new graduates or 1 experienced dentist. Very reasonable selling price. Reply to CDA Box 2420.

SASKATCHEWAN: Practice for sale. Large rural Saskatchewan practice for sale. Buyer to take over lease as purchase price. Excellent opportunity. Please write CDA # 2483.

MANITOBA: Rural practice for sale 45 minutes from Winnipeg. Located in new strip mall. Tel: (204) 339-1738.

ONTARIO—Brockville: For sale. Established practice (22 years). Short- or long-term: Call Roger Bateson (613) 342-6300.

ONTARIO—Kitchener/Cambridge: Long-established, busy, growing practice for sale. 2 ops, modern equipment. Professionally appraised. 85% insurance. Owner moving due to spouse's job transfer. Please call Jane Lukasik (H) (519) 746-5235, or (B) (519) 632-7915. Available Immediately.

ONTARIO—Newmarket: North of Toronto. Family practice in a new, modern office — storefront with good growth potential — 2 ops, 1 equipped, plumbed for nitrous, 1 hygienist. Priced to sell. Call (416) 841-2101.

ONTARIO—Suburban Toronto: Periodontal practice for sale. Excellent opportunity for growth. Reply in confidence to CDA Box 2475.

ONTARIO—Stratford: Practice for sale. Full-time preventive practice presents excellent opportunity for experienced dentist or ambitious new graduate. New, well-equipped, four-operatory facility in growing community. Friendly experienced staff. Reasonable and flexible terms. Vendor will assist for smooth transition, if desired. Trial associateship optional. (519) 664-2434.

ONTARIO—Toronto: Modern, fully equipped dental office at 94 Cumberland Street. Exceptional opportunity to establish a downtown practice, reduce overhead, and have a flexible work schedule. Unique space-sharing arrangement. Ideal for a G.P. or Specialist. Call: (416) 967-7179 days or (416) 489-8307 evenings.

ONTARIO—Suburban Toronto: Periodontal practice for sale. Excellent opportunity for growth. Reply in confidence to CDA Box 2475.

ONTARIO—West end Toronto: PRACTICE FOR SALE. Two operatories. 10 year old practice. Installation & wiring

in third operatory. Excellent practice. \$120,000.00. Please write # 2481.

ONTARIO—Thunder Bay: Dentist joining staff of college. Long-established, busy, solo practice. Two-year old building, 4 operatories, outstanding recreational opportunities. Practice for sale and building for sale or lease. Call (807) 768-0586 evenings.

QUÉBEC—Montréal West Island: Two fully-equipped operatories, dental office for sale. Very good flow of patients; office situated at Pierrefonds Medical Centre. Seven years practice in same location. Available immediately. Please call (514) 455-8545.

QUÉBEC—Pointe Claire: Bilingual dentist completing general practice residency seeks full-time associateship in Halifax or surrounding area. Please write to CDA Box # 2486.

NOVA SCOTIA—Lunenburg: Established practice for sale in medical/dental centre. Includes two fully-equipped operatories with shared panoramic x-ray and hygienist facilities. Just one hour from Halifax. Please reply to: Robert Murray DDS, P.O. Box 370, Lunenburg, Nova Scotia, B0J 2C0 or phone (902) 634-8880.

NOVA SCOTIA—Sackville: Situated 20 minutes from Halifax in enclosed mall in developing suburban area. 3-year-old practice with excellent rent and lease arrangements. 15 new patients per week, plus 1500 recall patients. Dentist wishing to consolidate effort in other existing practice. Priced for immediate sale. (902) 466-5484.

NEWFOUNDLAND—near St. John's: Well-established family practice and a house. Offered for an early sale as owner is returning to graduate school. Good gross and excellent net. Apply in confidence to CDA Box 2480.

Associateships Available

BRITISH COLUMBIA: LOCUM/ ASSOCIATESHIP. Experienced locum required June/July for six months extended leave. Separate associate position also available. These positions can be combined providing a unique career opportunity in our busy state-of-the-art practice for a capable and conscientious practitioner. Reply to Dr. Greg Nelson (604) 246-8134.

BRITISH COLUMBIA—Abbotsford: ASSOCIATE REQUIRED Associateship with view to partnership available to career minded dentist. Well-established, busy general practice is located one hour east of downtown Vancouver. Call: Dr. A. Quadir (604) 852-8487.

BRITISH COLUMBIA—Chilliwack: Associateship with view to partnership available to dentist committed to continuing education and excellence in patient care. Busy practice located one hour east of Vancouver in beautiful Fraser Valley. Area offers skiing, hiking, boating and mild climate. Present associate returning to school after having busy practice for 3½ years. For further information, contact Dr. Michael Thomas, 102-45625 Hodgins Ave, Chilliwack BC V2P 1P2 or call (604) 792-0021 (office) or (604) 795-9818 (residence).

BRITISH COLUMBIA—Duncan: 45 minutes from Victoria. Full-time Associate required. Busy general practice in Medical dental building with excellent support staff including Hygienists. Call (604) 748-8141, Drs. Anna Wang or Gary Chilibeck.

BRITISH COLUMBIA—Nanaimo: Associate required. Excellent opportunity in busy and growing practice in mall setting. Wonderful climate and recreational facilities. Close to Vancouver and Victoria. Reply: Dr. Patricia Crosson — days (604) 754-1949, evenings (604) 468-9892.

ALBERTA—Calgary: PART-TIME ASSOCIATE required for busy general practice in downtown Calgary. Contact: Dr. Maureen Meneley, 1227-12th Avenue, South West Calgary T3B 5B7.

ALBERTA—Red Deer: Associate needed on a full- or part-time basis for a busy Mall practice. Partnership a definite possibility for the right individual. Call (403) 346-1714 after 6:00 pm.

ALBERTA—St. Paul: Associate required for very busy rural practice in St. Paul with possibility of future buy-in. Associate could begin June 1990. St. Paul is a town of 5200 people located 200 km northeast of Edmonton. Enthusiastic, quality-conscious individuals are asked to contact: Dr. Larry Hodinsky, Box 235, St. Paul, Alberta T0A 3A0. Tel: (403) 645-2232 Bus. (403) 645-5482 Res.

SASKATCHEWAN—Regina: Full-time associate wanted for growing family practice. Excellent opportunity for committed dentist. Reply to: Dr. R. Katz (306) 924-1494.

ONTARIO—Leamington: Associateship leading to ownership. We require a special person to join our rapidly expanding general dentistry practice in a recently-completed, state-of-the-art facility. This individual must believe in clinical excellence, in the value of a team approach and in the importance of on-going continuing education. A full-time position is available immediately. If you are seeking a challenging and rewarding future in dentistry, please call (519) 322-2866 and ask for Lynn.

ONTARIO—Mississauga: Full-time and part-time associates needed for new modern Mississauga office. Excellent opportunity for progressive practitioner. Storefront location in shopping plaza, 250,000 sq ft. Modern facilities in professional walk-in medical-dental. Positions available June 1990. Call: (416) 452-7111.

ONTARIO—Penetanguishene: Ambitious full- or part-time associate wanted for a busy well-established, growing, high-quality, family preventive practice. Located in beautiful year round recreational atmosphere of southern Georgian Bay. Fabulous boating, fishing, hunting, golf and skiing available. Modern, bilingual, fully-computerized, open concept four-operatory, quality facility, with full-time hygienist. Progressive, relaxed atmosphere offers unique and excellent opportunity for a young, conscientious, dynamic, energetic graduate or established dentist to practise all branches of dentistry with an enthusiastic and talented staff. Hospital privileges are available. Highly motivated, exceptional caring dentist as an associate, with a view to a definite partnership possibility wanted. Present associate relocating. Solid professional environment, along with encouraged continuing education will allow you to maximize your potential in dentistry and will provide you with an exciting and rewarding experience. Call in confidence, collect: Days: (705) 549-3355, evenings: (705) 526-5550.

ONTARIO—Sarnia: Associate required for a full- or part-time position. This general practice offers full patient load, modern equipment and high insurance coverage in a professional setting. Excellent income. Buy in or partnership opportunity. Dr. T. Pringle, (519) 542-3427.

ONTARIO—Toronto: ASSOCIATESHIP AVAILABLE for two to three days a week in downtown group practice. Contact Lisa (416) 535-2111.

QUEBEC—Pincourt: Dentist bilingue avec possibilité d'association pour clinique à l'ouest de Montréal. Contactez Dr. De La Fuente, au (514) 453-0830.

NEW BRUNSWICK—Dalhousie: Venez visiter la Baie des Chaleurs. Associé ou partenaire demandé pour pratique dynamique et multidisciplinaire. Bureau rénové en 1989, 5 salles opératoires. Clientèle avec régime d'assurance. Grand bassin de population à 15 minutes. (506) 684-2747 ou 684-5873.

NEWFOUNDLAND: LOCUM REQUIRED for rural dental practice, Burin Peninsula, from August to December 1990. Please reply Dr. M.T. Flynn (709) 891-2390.

NEWFOUNDLAND—Marystown: Associate wanted for rural Newfoundland practice. Current associate nets \$100,000 plus per annum. Full book plus friendly staff. Latest equipment and techniques in this busy office. Please write CDA Box 2485.

Auxiliaries

BRITISH COLUMBIA—Abbotsford: HYGIENIST WANTED Full-time hygienist required for busy practice in Abbotsford, British Columbia (one hour east of downtown Vancouver). Applicants must be career minded. Being a "team-player" with above average verbal skills essential for this position. Contact: Mr. M. Motani (604) 852-8487 (collect).

Opportunities Available

BRITISH COLUMBIA—Ferne: REQUIRED IMMEDIATELY. Associate required for busy practice in Ferne British Columbia, Canada. Excellent outdoor recreation, tremendous powder skiing. Please contact Dr. Ben Gibson at (604) 426-5865.

BRITISH COLUMBIA—Kootenay: CERTIFIED DENTAL HYGIENIST wanted in southern British Columbia, Kootenay. Full-time or part-time. Reply to CDA Box #2482.

BRITISH COLUMBIA—Gray Creek: SHANGRI-LA Are you seeking a clean, natural environment? mild winters? quality, independent clientele? flexible, relaxed lifestyle? an opportunity for the future? low overhead, affordable office? My practice overlooks pristine Kootenay Lake, the Jewel of Southeast British Columbia. Write, Dr. Prussin, Gray Creek, B.C. V0B 1S0.

BRITISH COLUMBIA—Prince George: Enjoy the great outdoors of the northern interior! Female dentist with 5 years experience in growing, general, family-oriented practice has an opening in a modern, computerized office for someone seeking a long-term arrangement with possibility of future buy-in. Reply to CDA Box 2479.

BRITISH COLUMBIA—Vancouver: Sale of total or half interest in a very busy high gross practice. Broadway and Commercial area. Please write CDA # 2489.

BRITISH COLUMBIA—Vancouver: ORAL AND MAXILLOFACIAL SURGERY PRACTICE FOR SALE. Full scope, well-established contemporary practice in excellent location has afforded me this luxury. Modern, spacious, well-equipped office. Prefer outright purchase and will consider association leading to purchase. Replies to CDA Box 2487.

MANITOBA—Neepawa: Dental office recently vacated in Neepawa, rural Manitoba, half-way between Brandon and Winnipeg, to occupy same building as two established General Practitioners. Neepawa is situated between two national parks, excellent outdoor recreation. If interested please write to Dr. O. White, Box 1660, Neepawa, Manitoba, R0J 1H0 or phone (204) 476-3381 working hours.

ONTARIO—London: PERIODONTIST. Exceptional opportunity in busy, well-established, broad referral based practice. Associate/partnership. Hygienist, excellent staff, prestige office. Please reply to CDA Box 2478.

ONTARIO—Toronto: PERIODONTIST REQUIRED. For one day in downtown group practice as an associate or to share space. Contact Lisa (416) 535-2111.

ONTARIO—North Toronto: Position available immediately for a paediatric dentist with Ontario certification in a modern, well-established private practice. Full range of dental care provided

from preventive to orthodontic services; well care and special needs (mentally and physically compromised) children and adolescents. Associateship with future prospects for partnership or cost-sharing arrangement. Please reply to CDA Box 2426.

NORTHWESTERN ONTARIO: Dentist position available in mobile school treatment program. Clinic sites located in Kenora-Rainy River district of Ontario. Competitive salary and benefits offered. For more information, contact: Dr. L.W. Armstrong, Director, Preventive Dental Services, Northwestern Health Unit, 21 Wolsley St., Kenora, Ont. P9N 3W7 Tel: (807) 468-3147.

QUÉBEC—Ville de Laval: Periodontist needed to join an established group of dental specialists. Part-time perio practice in operation for two years. Please call Dr. Alain Brault (514) 668-6680.

NEWFOUNDLAND—Gros Morne National Park: For sale, lease or for associateship. Thriving practice in beautiful park setting. Two fully equipped operatories. Owner staying in area and willing to work part-time or cover for vacations. Phone (709) 458-2111 (O) or (709) 458-2147, Dr. Marina Sexton.

NEWFOUNDLAND—St. John's: Busy general practice for sale. High gross and low overhead in newly renovated building. Goodwill priced low for quick sale. New owner simply has to assume equipment and site lease. Please write CDA # 2480.

AUSTRALIA—Stawell: Busy dental practice for sale in Western Victorian town of Stawell. Wine growing region close to Grampians National Park. Practice is still growing, and there is great opportunity for further expansion, with room for 2 more surgeries. Sale is regrettably necessary due to family reasons. Price AUS \$150,000 negotiable. For further details apply to Dr. Charles Reid, 52 Main St., Stawell, Victoria 3380, Australia, or telephone (53) 524792.

BAHAMAS—Nassau: We have an employment opportunity for the Service of a *Dental Laboratory Technician* experienced in Crown and Bridge Ceramics. Please forward a Resume to: Pine Dale Dental Clinic, Family Dentistry, #25 Pine Dale off Wulff Road, P.O. Box N-1946, Nassau N.P., The Bahamas.

BAHAMAS—Nassau: We have an employment opportunity for the Service of a *Dentist* to do *General Dentistry*. We are fully equipped with a Laboratory Service of Crown and Bridge Ceramics full upper and lower dentures and cast chrome partials. Please forward a Resume to: Pine Dale Dental Clinic, Family Dentistry, #25 Pine Dale off Wulff Road, P.O. Box N-1946, Nassau N.P., The Bahamas.

Equipment

SASKATCHEWAN: IMPLANTS: for Electric motor/physiodispenser. Electric motor handpiece 280:1. Electric motor h. 15:1 redn. contra-angle. Electric motor h. 10:1 redn. contra-angle. All for \$600.00. Call (306) 525-9620.

ONTARIO: 1 Cox chairside lab, 1 Cox storage lab, 1 Cox assistant unit 2. Floor display models. Never used. Colour Acorn. Contact: Dr. T. Cox, Guelph Bus (519) 824-4970 or Home (519) 763-0626.

Vacation Rentals

BRITISH COLUMBIA—Whistler: Ski Chalet. Brand new condo available for this season. Steps from Whistler Village and lift on edge of golf course. Great view! Jacuzzi and steam. For details, call (416) 239-4393 — Dr. John.

BRITISH COLUMBIA—Whistler/Blackcomb: Walk to village and lift from my super 3 bedroom + loft chalet! Stunning view, fully-equipped. Sleeps eight comfortably. \$2000 per week. Call Dr. David Speirs (604) 874-3404.

BRITISH COLUMBIA—Whistler: If you are planning a summer holiday don't miss this opportunity. \$700.00/week in scenic Whistler for a fully equipped new house. Sleeps to 6 to 8. Lots of summer fun hiking, biking, golf, tennis, fishing, swimming, etc. Also call now for next winter's ski season. For reservation call (514) 562-8255.



THE HOSPITAL FOR SICK CHILDREN

Head, Division of Orthodontics

The Department of Dentistry invites applicants for the geographic full-time hospital position of Head of the Division of Orthodontics.

Responsibilities will include orthodontic practice, management of the Division, teaching and research. The Division of Orthodontics is a major component of the Craniofacial Treatment and Research Centre and has a program of orthodontics for children with special needs.

Applicants must be eligible to practice the specialty of Orthodontics in Ontario. Advanced training and eligibility for university appointment are required.

Send curriculum vitae to:

Dr. David J. Kenny
Dentist-in-Chief
The Hospital for Sick Children
555 University Avenue
Toronto, Ontario
M5G 1X8
(416) 598-6008
FAX (416) 598-6375

Is Dentistry Badly Served?

For too many years the fact that dental implants failed at a unconscionably high rate was not generally known outside the profession. Even within the profession, failures were often assumed to be failures of "patient selection", "operator training" or faulty oral hygiene. The real culprit, however, was, in each case, the procedure itself, whatever the one chosen. Blades, subperiosteal castings and the like are now, thank heaven, largely passe because the concept of osseointegrated titanium has been proven by Brånemark.

The Brånemark system — detailed and rigid instructions to clinicians on the steps to be followed, detailed specifications for the manufacture of the implant fixtures — is as proven as anything in dentistry ever has been. Some day we may find that it is possible to shortcut some of Brånemark's rules, but we will have to be convinced of this by carefully controlled testing. In the meantime we are stuck having to follow all the expensive steps without daring to make changes. Osseointegration is proven only for this one system, and only when the protocols are carefully followed.

Dentistry is badly served when the CDA Journal (last summer — May/June, 1989), appears to believe that all the systems on the market are much alike, one to another. "Seen one, seen them all". "All succeed, all fail." We are badly served when Health and Welfare Canada gives notice of compliance to two (now three) other brands of implant that have no published data from clinical trials to support claims of Safety and Effectiveness. We will be particularly badly served if the Canadian Dental Association lets all this pass without scrutiny or comment.

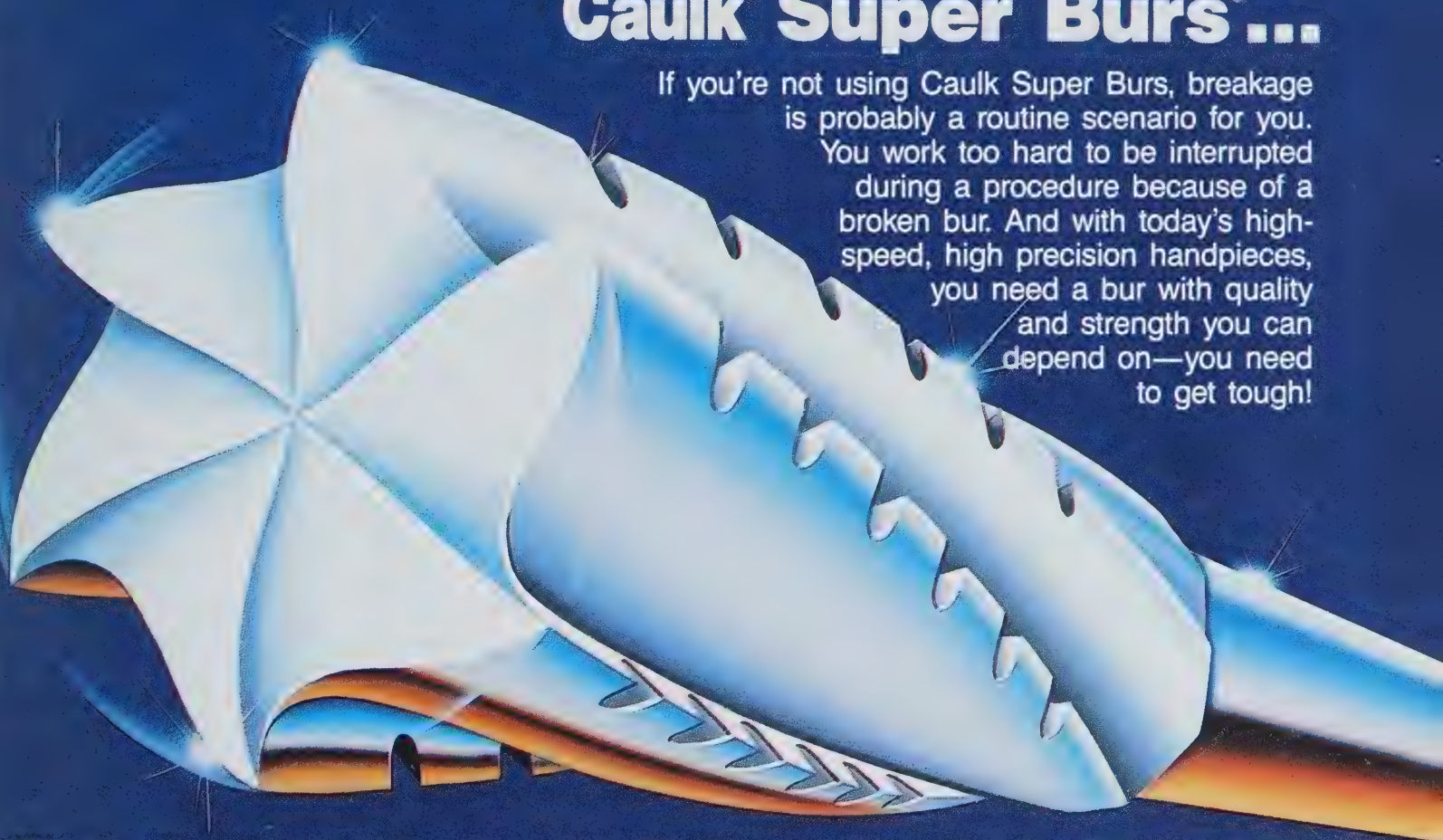
Dentistry is either on the threshold of a revolutionary advance in dental treatment, using perhaps the most durable form of dentistry yet developed, or we are about to be shown up as suckers for all the hucksters and carpetbaggers in the dentistry marketplace, more concerned for profit than patient care. Surely there is some way the CDA can get a handle on this before it is too late for us to exert any control ourselves. There are certainly people at our universities competent to make decisions about the adequacy and validity of clinical data.

*Hugh MacKay, DDS,
Toronto, Ont.*

The going gets easy when you... **GET TOUGH!**

Caulk® Super Burs®...

If you're not using Caulk Super Burs, breakage is probably a routine scenario for you. You work too hard to be interrupted during a procedure because of a broken bur. And with today's high-speed, high precision handpieces, you need a bur with quality and strength you can depend on—you need to get tough!



Tough Bur

Caulk Super Burs are tough. And when it comes to quality and strength—they really deliver. With features like an ultrasmooth contour for maximum cut with minimum friction. And a more positive rake angle for improved cutting efficiency. Not to mention smooth and fast cutting action. And that's not all. Double grinding during manufacturing gives Super Burs more sharpness and smoothness for cooler operation.

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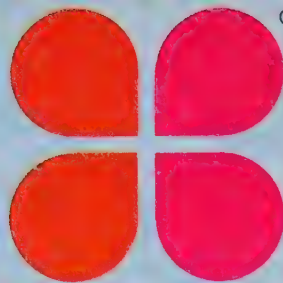
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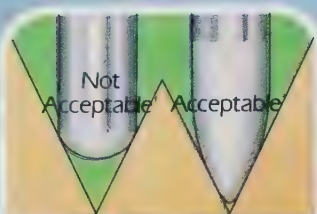
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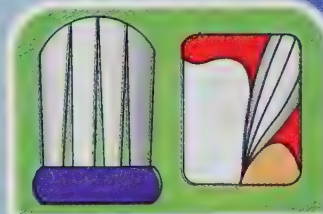
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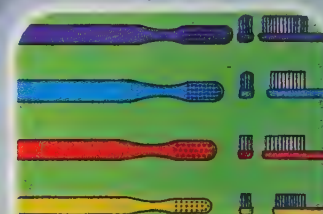
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CDA MISSION STATEMENT

The Canadian Dental Association serves the dental profession — and through the profession the Canadian public — as the authoritative national voice and resource for dentists.

In cooperation with the provincial dental associations and affiliated organizations, CDA offers services, in both official languages, intended to support and advise all areas of dentistry and to represent, protect, promote and develop the interests of the dentist as ethical practitioner, professional, educator, student, researcher, business person, citizen and individual.

CDA recognizes a particular responsibility to contribute to the development of national positions and standards related to dentistry, dental education, dental research, dental equipment, dental materials and dental personnel.

CDA is dedicated to the principle that all Canadians should have the best oral health care it is possible to provide; it actively seeks input from and dialogue with governments, consumers and all those interested in dentistry to enable it to serve more effectively both its members and the Canadian public.

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[†] Supragingival Calculus Formation Study: "A Study to Compare the Effects of Two Dentifrice Products on Adult Supragingival Dental Calculus Formation" 1989. Data on file, SmithKline Beecham Canada.

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Canadian Dental Association
l'Association Dentaire Canadienne

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Ottawa — the nation's Capital — is the locale for the 1990 Convention of Canadian Dental Association. Parliament Hill, seen in the cover photo, is a short walk from the Convention Centre and major hotels and the color and pageantry of the Changing of the Guard ceremony is a major attraction on weekday mornings — until Labour Day. A broad range of historic, cultural, recreational and commercial delights await Convention delegates and their families during the August 25-29 period.
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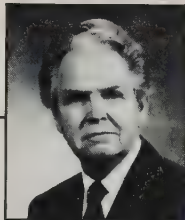
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What Do You Mean – You Don't Mind Paying Taxes?

A solitary dentist in a crowd recently proclaimed, (it was shortly after Mr. Wilson's last budget), "You know, I really don't mind paying taxes." Before he was about to be set-upon, bound and committed, he quickly defended his extraordinary statement with a fairly plausible explanation.

"Dentistry has been very good to me over the past 30 years," he said. "It has given me many professional advantages, but more than that, it has afforded my family an above average income with all amenities and advantages of being 'middle class Canadians'. My wife and I worked hard and saved our money and now in our latter years we have been able to follow a long-sought dream. We travel.

We have visited 22 different countries and if there is one lesson we have learned, far and above all others, it is that we are privileged to live in the best country in the entire world. We are totally convinced we enjoy more physical, material and spiritual advantages in Canada than any other place our travels have taken us."

"Mind you", he continued, "I detest government mismanagement, bungling, waste and inefficiency and denounce it at every opportunity. However, if paying high taxes gives me a country like Canada, I will continue (albeit, at times begrudgingly) to make my contribution."

It is not known for certain whether many agreed with the well-travelled dentist but his statement certainly bears an analogy applicable to dentistry itself. The opportunities, standards and rewards of Canadian dentistry are as high as any place in the world. However, like taxes, there is a price to pay.

The price is dental dues. It's that hard-earned money paid, (like taxes, often begrudgingly), into the treasuries of our associations and licensing bodies.

It is sometimes heard (usually around the time dues cheques are to be put into the mail) that the CDA portion is "getting out of hand – it's costing too much money". Not so – say hard statistics and realistic examination. It bears scrutiny.

A recent ten-province, 1981 to 1990 review of dues structures, indicated the total **Canadian Dental Association** dues had increased from \$213.00 to \$360.00 per dentist – a rise of 69 per cent in ten years. Yet individual provincial dues had escalated an average of 152 per cent – ranging from a low of 126 to a high of 178 per cent.

CDA would never be so presumptuous as to tell provincial associations how to spend money but on the other hand it isn't fair for CDA to be singled out as the main reason for the increased cost of doing business. A 69 per cent increase over a ten year period did not even keep pace with inflation! When compared to the proud list of CDA accomplishments over ten years, that 69 per cent increase in dues has gone a long, long way.

When the profile of the national Association is considered over ten years it isn't difficult to realize Canadian dentists indeed have a bargain. CDA's continuing dialogue with the Federal Government regarding Taxation, Customs & Excise, Medical Services, GST, and Standards have saved every practising dentist in Canada thousands of dollars. A national Accreditation system guarantees dental educational standards as the best in the world. A refereed Dental Journal and a sophisticated Resource Centre are recognized among the finest. The CDA Dental Awareness Program is gaining more exposure than any other comparable plan in the history of Canadian dentistry. The recently launched National Electronic Data Interchange system will revolutionize claim form processing. EDI was first proposed by CDA's Third Party Committee. In 1990, for the first time in CDA history, the National Convention in August will be "no-charge" for CDA members. Space just doesn't permit a complete inventory of value for the CDA dues dollar.

No doubt the same Canadian dentist who doesn't mind paying taxes for the country he loves, (provided responsible stewardship is clearly evident), would be the first to recognize that **for less than a dollar a day** dentists in Canada are represented by one of the finest national dental organizations in the world. Wouldn't you agree?

P. Ralph Crawford, BA, DMD

Editor: Journal of the Canadian Dental Association

President's Column



Trust must be earned

Recently, quite a few of my patients have requested replacement of "lead fillings" (amalgam) with tooth-coloured fillings for various reasons. Most often, the patient is concerned with aesthetics and simply wants a filling that looks more natural. I have received some requests from patients concerned about health, however. In discussing their concern with them I have drawn upon an article entitled *The Mercury Scare* (published in *Consumer Reports*, March 1986) which states, "if a dentist wants to remove your fillings because they contain mercury, watch your wallet." As far as I am concerned, this article should be mandatory reading for any dentist who would quarrel with CDA's guidelines for replacement of silver amalgam which were published in the 1989 CDA December *Communiqué*. The *Consumer Reports* article summarizes the situation succinctly:

"Can mercury in fillings cause those or other health problems? That's the key question in dentistry's newest controversy. 'Anti-amalgam' dentists such as Berger contend that mercury fumes from amalgams can cause problems ranging from depression and multiple sclerosis to fatigue and irritability. Their solution: Drill out the amalgams and replace them with fillings from other materials."

My personal interest in this question began eight years ago when one of my patients travelled to Colorado to see Dr. Hal Huggins, a prominent anti-amalgamist, for a complete replacement of her amalgams with gold inlays, onlays and crowns. Later, she developed severe TMJ problems and eventually it was determined that cancer was at the root of her difficulties. New gold inlays and onlays provide superior durability when specifically required or when patients can afford the choice of the more durable and more expensive alternative. In CDA's opinion, however, it is unethical to encourage patients to pursue this alternative simply because of their unsubstantiated fear of mercury contamination.

In my opening remarks to the CDA Interim Board, held in Ottawa this past March, I pointed out that the last few months have seen some interesting developments in the continuing debate about the extent of toxicity of silver mercury amalgam. A paper by Dr. Murray Vimy and several others suggests that there is some organic uptake from mercury dental amalgam*. The article has been carefully reviewed by members of the CDA Committee on Dental Materials and a number of reservations were expressed about differences between the placement of amalgam in sheep and in humans, especially because sheep are ruminating animals and newly placed amalgam would wear at a rate in excess 60 times the rate that would be applicable in the human mouth. Nonetheless, this research is typical of new approaches which are raising new questions on this topic and as a responsible profession, dentistry must be interested in obtaining comprehensive and accurate answers.

I firmly believe that the dental profession in Canada must do what it can to encourage further research on this topic and I have written to the Deans of faculties of dentistry in Canada and suggested that they encourage appropriate initiatives. In conjunction with this, the Canadian Dental Association has arranged a grant of \$10,000 to the Canadian Fund for Dental Education on condition that it be applied in support of related research proposals developed by dental materials departments of Canadian faculties of dentistry. The Canadian Dental Association is also approaching government to encourage NHRDP grants in support of such research.

A recent Gallup poll placed dentists in the number one position as the profession considered the most trustworthy by the Canadian public. This is the first time that we have reached first place and it is a tremendous compliment for the profession. It is also symbolic of a tremendous obligation. Individually, we must continue to act in a responsible and ethical manner when approached by a patient interested in the replacement of silver amalgam. Collectively, through the Canadian Dental Association, we must encourage the further research necessary to answer the questions that are being raised. Trust is never simply given, it is earned. Let's continue to earn it by acting, individually and collectively, in the patient's best interest.

Kevin L. Roach, BSc, DDS,
President of the Canadian Dental Association

* Hahn, Leszek, J; Kloiber, Reinhard; Vimy, Murray J.; Takahashi, Yoshimi; and Lorscheider, Fritz L. Dental "silver" tooth fillings: a source of mercury exposure revealed by whole-body image scan and tissue analysis. *FASEB J.* 3:2641-2646; 1989.

GUEST EDITORIAL

Membership has its Privileges

Why join the Canadian Dental Association?



Dr. James W. Shosenberg
Editor: Ontario Dentist

“**W**hy join the Canadian Dental Association?” dentists sometimes ask me. “The only benefit is the Journal and the CDA sends it to me anyway.” I agree. For dentists who concur with this line of thought, here’s a list of functions the CDA performs that aren’t worthwhile. Refer to it for excuses the next time the CDA asks you to join.

It isn’t worthwhile for the CDA to award a seal of approval to consumer products it recognizes as beneficial to oral health. The public should discover the facts by itself.

It’s useless for the CDA to hold a national dental convention. Dentists can maintain their professional skills on their own.

Dentists don’t need a CDA committee on dental materials and devices. Every dentist is capable of testing and rating new dental materials.

The CDA shouldn’t try to strengthen the Tobacco Products Control Act, ensure the proclamation of the Non-Smoker’s Health Act or force legislation to prevent tobacco sales to children. Tobacco sales to children or anyone else shouldn’t concern dentists.

It isn’t worthwhile for the CDA to develop dental marketing materials. Who cares if Canadian dentists have benefitted from \$4 million in corporate sponsorship? Who cares about Dental Health Month? Who cares if the CDA *Keeps Bob Smiling* and patients visiting dental offices?

It isn’t worthwhile to have a CDA Affinity card. Dentists want to pay full price for travel services.

It isn’t worthwhile to publish a national fully-referenced dental journal. Dentists can rely on advertisements to learn about advances in dentistry.

Dentists don’t need the CDA to lobby the federal government to exempt dental services from the seven percent Federal Goods and Services Tax. We can trust the government to treat dentists and consumers fairly.

Dentists don’t need the CDA’s Dialogue in Dentistry Program. We can leave it to insurance carriers to design dental plans that are in the best interests of dentists and patients.

Dentists don’t need the CDA to set up a national Electronic Data Interchange system for dentists. We should allow private business corporations to control our information systems.

Yep, there’s not a single benefit to becoming a member of the Canadian Dental Association. Not unless you’re a Canadian dentist.

Editor’s Note: The Journal thanks Dr. Shosenberg for permission to reprint this outstanding editorial which appeared in *Ontario Dentist*, March, 1990, edition. Dr. Shosenberg, who is Editor of *Ontario Dentist*, is also Director of the Dental Division of the city of Scarborough (Ontario) Health Department.

PAEDODONTICS IN EUROPE

Canadian dentists have 'unique advantage' to ease great need

Cosmo Castaldi, DDS, MSD, Professor Emeritus of the Department of Paediatric Dentistry, University of Connecticut Health Centre, is very concerned about the lack of dentistry for children in European countries and believes Canadian dentists could improve the circumstances.

He said the public in West Germany "is crying for dentistry for children."

Where children's dentistry is taught or practised at all "they are light years behind us in the United States and Canada."

This is also the picture "in the whole field of preventive dentistry", he told the Journal in a recent interview.

Language advantage

Canadian dentists could play an important role because they have distinct language advantages in many cases, Dr. Castaldi said.

"What you have in Canada is dentists, all kinds of them in Western Canada, who can speak Ukrainian, Polish, Croatian — who can help these people. We could send some teaching material with them, to show them what we do in the field of children's dentistry."

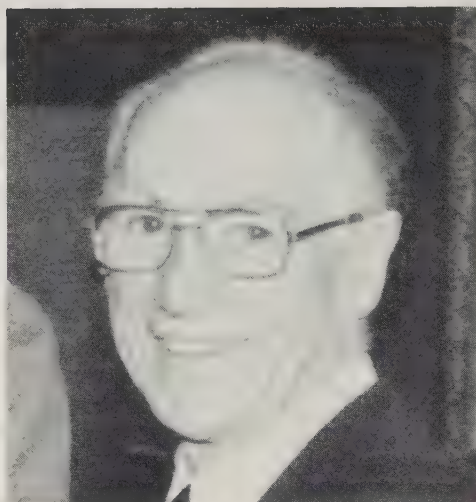
Dentists in the United States do not possess this language advantage, he said, because of the American "melting pot" philosophy, where languages and customs of the grandparents disappear.

"People in such countries as Poland and Hungary, are just dying to have dentists from Canada and the United States come over there and lecture to them."

He believes Canadian dentists could help greatly through an organized volunteer program.

"The dentists who could help these people are either specialists and others who do general dentistry and are treating children, because there is no specialty group, and therefore, these people would be very good."

He mentioned that Dr. Gerald Wright of the Faculty of Dentistry, University of Western Ontario, hopes to be able to go to Europe in 1991 "to tactfully examine children in the school system in at least four countries, to get some idea of their dental health."



C.R. Castaldi, DDS, MSD

Dr. Castaldi said that a number of new immigrants from Poland and other eastern European countries are settling in the London, (Ontario) region, and they come into the clinics at the University of Western Ontario for treatment. The decay rates are like we saw 25 or 30 years ago. This is one of the reasons Dr. Wright wants to go. He's a world authority on behaviour of children in the dental office. That's where they're terrible over there. They don't know how to handle children at all.

Exchange visits

He believes Canadian dentistry could encourage European dentists who were interested "to come over here and get some training".

"An unofficial program of exchange visits by European dental students to dental schools in the United States has been initiated and is proving to be helpful", Dr. Castaldi said. "They know virtually nothing about children's dentistry. The subject is hardly taught at all. They want to learn about it, but they're not getting it".

First-hand experience

Dr. Castaldi has seen the situation first-hand on two occasions — following the 1972 Russia-Canada international hockey series and on a 1980 sabbatical.

He believes the recent surprising political developments in Eastern Europe will

make it easier for North American volunteers to enter those countries and help to either upgrade or establish modern children's dentistry.

Expatriate Canadian

Dr. Castaldi, who was born and raised in Sudbury, Ontario, received his DDS from the University of Toronto in 1944.

He developed an early interest in children's dentistry and studied that specialty in Northwestern University. He told the Journal that he then got involved in dentistry for the seriously handicapped child and practised in the United States.

He was offered a teaching position with the Faculty of Dentistry of the University of Alberta, accepted, and remained there for nine years. Following that, he went to the University of Manitoba and was a dental faculty member for three years.

After a year at the University of Oregon, Dr. Castaldi was invited to go to the University of Connecticut and he became the first head of the new Department of Pediatric Dentistry. He remained there until retirement.

Sports Dentistry

Dr. Castaldi is very much involved in sports dentistry and is a Charter Member of the Academy of Sports Dentistry, an organization devoted to the development of effective protective devices to prevent injury in contact sports.

He personally is a very ardent sports fan and has been a keen participant until recent years, in Old-Timers hockey games. He believes there should be a Canadian counterpart for sports dentistry, because the Academy is essentially an American organization.

Dr. Castaldi pointed out that a prominent Canadian pediatric dentist, Dr. Art Wood of Toronto, is currently President of the Academy of Sports Dentistry.

Dr. Wood, who has gained international distinction as a pioneer in the development of mouth guards and face protectors, received the Canadian Dental Association's Distinguished Service Award in 1985. He is the Canadian Dental Association's representative with the Canadian Standards Association. △

The International College of Dentists: Its origins and development

Neil Munro, DDS
Willowdale, Ont.

The idea of an international College of Dentists was born at a dinner party in Tokyo in November of 1920. A group of dentists had gathered to bid farewell to a colleague who had served in the Orient for many years. They deplored the lack of scientific and professional communication with dentists in other countries and it was suggested that an organization be formed to improve this situation.

Several organizational meetings ensued and the plans emerged for an organization of leading dentists from all over the world. Its purpose would be to promote cordial relations within the profession and help provide for the dissemination of scientific information. The International College of Dentists (ICD) was the result. Many members belonged to the Federation Dentaire Internationale which lent its support and encouragement to the new organization.

Chartered in U.S.A. in 1928

The ICD was chartered in the United States in 1928 but really didn't become operational until 1934. It was planned to charter other sections throughout the world but World War II intervened. Many Canadian dentists were active in the U.S.A. Section and in 1948 Canadian members formed their own autonomous Section, installing officers and inducting Fellows in 1949. The Canadian Section was the first to be chartered after the U.S.A. Section and has made a significant contribution to the International College over the years. The Constitution adopted by the new Canadian Section served as a future model for other countries as they become members of the international organization. Four Canadian members have been elected International President, the most recent being the present Registrar, Dr. Bill Spence.

Other Sections evolved in various countries and the ICD now embraces virtually every nation in the world. The most recent addition was the Korean Section, which was chartered in 1985. In 1986 the Peoples Republic of China Section was re-established after an absence of almost 40 years.

Extent of Canadian Section

The Canadian Section, which also includes British West Indies, Bahamas, Bermuda, Barbados Islands and Jamaica, has its own constitution and bylaws. Its elected officers represent all regions of Canada and it has a Registrar and an appointed Treasurer and Editor. The College offices are located in Toronto and the day-to-day operation of the College is managed by the Registrar. Recently the business and membership records were computerized.

Geographically the Canadian Section is divided into Districts, each represented by a Regent and one or more Deputy Regents; every effort is made to assure that the selection of Fellows is fairly representative of the nation. Membership is initiated at the District level and with recent bylaw improvements, the method of proposing and approving prospective Fellows is a democratic procedure.

The College is an honorary Fellowship granting organization consisting of dental professionals throughout the world who have been chosen for their outstanding contributions to dentistry and their community. Candidates for Fellowship are elected locally by their peers. In most cases the individual may be prominent because of his or her contribution to the profession but this is not necessarily a criterion for selection.

Objectives of the College

The objectives of the College are many and are defined in the Constitution. The Canadian Section considers that it is important to honour Canadian dentists by asking them to become members of this international association. The College at large contributes to dental education by providing visiting scholars and the contribution of dental texts to dental schools in Third World Countries. The Canadian Section financially contributes to the Canadian Fund for Dental Education and grants scholarships to dental students at each dental school in Canada. The Section presently has a committee studying how it may play a role in the Third World in the area of dental services for people suffering pain resulting from total lack of dental care.

The ICD has successfully reached out into the world and found dentists worthy of this worldwide fellowship. The ongoing challenge now facing the College will be to find better ways to exchange information between the member nations and to bring together leaders in dentistry from countries of the world to discuss the needs of dentistry now and in the future. Δ

(Dr. Neil Munro, is Editor of the International College of Dentists Newsletter)



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VIPs ON HAND AT GOVERNMENT RELATIONS GATHERING



Federal Health Minister Perrin Beatty, right, was introduced to a new personage prior to the annual CDA Government Relations Dinner recently. The Minister greeted "Smiling Bob" with genuine courtesy and the two soon built a cordial rapport.



CDA President Dr. Kevin Roach, left, also enjoyed the pleasure of meeting Health Minister Beatty and enjoyed a friendly informal chat.



Deputy Health and Welfare Minister Margaret Catley-Carlson chats with CDA President Dr. Kevin Roach prior to the annual CDA Government Relations Dinner, at which the Deputy Minister was guest speaker.



Another pleasant occasion at the event occurred when Michael Hart, right, the President and Chief Executive Officer of Ash Temple presented an Equity Grant cheque in the amount of \$10,000 to CDA President Dr. Kevin Roach. The Grant is designed to encourage and facilitate the development of clinical dentistry and continuing education.



In what was described as the saga of the "revolving cheque", Dr. Kevin Roach in turn presented the Ash Temple \$10,000 Equity Grant to the Canadian Fund for Dental Education (CFDE). Dr. Ted Ramage, CFDE Chairman, accepted the cheque, to aid in conducting research in amalgam restorative materials.

Obituaries/Nécrologie

Hubar, Reuben D. Dr. Hubar was a graduate of the Faculty of Dentistry, McGill University, in 1959. He conducted a practice in Montréal.

Hevey, Jacques. Diplômé de l'Université de Montréal en 1957, le Dr. Hevey exerçait sa profession à St-Hyacinthe, Québec.

Krupanszky, Judith A. A native of Hungary, Dr. Drupanszky was a graduate of the University of Toronto in 1964.

Rennie, George. Dr. Rennie received his DDS degree from McGill University, Montreal, in 1952. He conducted a long-time practice of dentistry in Ottawa. He was a Life Member of the Canadian Dental Association.

Stitt, M.L. A graduate of the University of Toronto in 1927, Dr. Stitt practised dentistry in Toronto.

Truuvert, Pivet. A native of Stockholm, Sweden and a graduate of the University of Toronto's Faculty of Dentistry in 1978, Dr. Truuvert died in an auto accident near Ottawa in March.

Wilson, Murray R. A graduate of the Royal College, Toronto, in 1922, Dr. Wilson carried on a long time practice in Perth, Ontario. He was a Life Member of the Canadian Dental Association.

DR. THOMAS M. CURRY

Eminent public health dentist passes in Edmonton, Alberta



Dr. Thomas M. Curry

A dentist who made a great contribution to public health dentistry not only in Canada, but internationally, Dr. Thomas M. Curry, died recently in Edmonton.

He had most recently been serving as Director of Dental Services for the Alberta Department of Public Health, a post to which he was appointed in 1978. Previous to that, Dr. Curry was Chief Dental Advisor, Health and Welfare Canada (1974-1978).

Trained in Ireland

A native of County Wexford, Ireland, Dr. Curry was awarded his dental degree by University College, Dublin, Ireland, in 1956. After a period of service with England's and then Norway's National Health Systems, he came to Canada and worked in remote parts of Newfoundland. The conditions he encountered persuaded him to embark on a career in public health dentistry.

He returned to university and obtained his credentials at the University of Toronto. His career began in Calgary, Alberta. Dr. Curry was soon in the forefront in campaigns to introduce fluoridation. As Provincial Dental Director in Saskatchewan (1967 to 1974) he conducted extensive surveys which demonstrated the need for more dental services for children and a fully developed Saskatchewan Dental Plan was in place using locally trained dental nurses prior to his appointment with the federal government's health and welfare department.

International contribution

While serving in his federal government post, Dr. Curry participated in many overseas projects and soon became very active in the Fédération Dentaire Internationale's working groups. He was named leader of the FDI's working group on Dental Health Education in 1976 and in 1978, was appointed as a consultant, for a five-year term, to the Oral Health group of the World Health Organization (WHO). He was also a member of WHO's Oral Research Advisory Group.

Dr. Curry was a charter member and Past President of the Canadian Society of Public Health Dentists and was also active in the Public Health Association.

In addition to his services with the Alberta Department of Public Health, Dr. Curry served on a part-time basis, as an Associate Professor with the Faculty of Dentistry of the University of Alberta. He was also a past member of the Editorial Board of the Canadian Journal of Public Health. △

An Apology

Ash Temple Limited wishes to apologize for the mis-spelling of the name of Dr. Lawrence Yanover as author of "The Ten Commandments of Infection Control" in the Ash Temple "Dental Update" insert in the April 1990 edition of this Journal.

CFDE receives \$25,000 grant from Dr. MacLachlan's estate

The Board of Trustees of CFDE announces receipt of a grant of \$25,000 from the estate of the late Dr. Lorne MacLachlan.

Dr. MacLachlan graduated from the University of Toronto in 1920 and resided in Ottawa until his passing in 1985. Recognized and renowned as a prosthodontist, he maintained a life-long interest in professional development.



The late Dr. Lorne MacLachlan

Dr. MacLachlan founded the Ottawa Prosthetic Study Club — the first study group to be established in that city. Many study groups had their origins in that first club and Dr. MacLachlan is still fondly remembered as the stimulus behind the development of continuing education in the Ottawa Region.

Of unique interest is that the three largest endowments segregated in the Canadian Fund for Dental Education have been bestowed in the names of outstanding donor-dentists who resided in Ottawa — Dr. Sydney Wood Bradley (1879-1967) (who also endowed the CDA Library), Dr. George Barrett, (1931-1978), and Dr. Lorne MacLachlan, (1894-1985).

Dr. MacLachlan left a large trust of well over one million dollars which has benefitted immeasurably a number of Canadian faculties of dentistry. This most recent gift of \$25,000 is the last to be received from this source as the trust has now been exhausted.

The principal amount of \$25,000 will be endowed while utilizing the annual income for the support of fellowships and teaching projects. △

(By Dr. Donald O'Connor CFDE Trustee)

Meet the CDA Headquarters Staff CDA CONVENTION STAFF



The number of convention staff varies throughout the year. It ranges from two full-time staff and the General Chairman in the early stages, to approximately 100 staff and volunteers during the weeks preceding the Convention.

Dr. Michel Jahjah, a full-time dental practitioner in Montreal, is a well-known figure in conventions throughout North America. As General Chairman of CDA Conventions he commutes to Ottawa one day a week and on the other days is in constant communication with Ottawa convention staff by fax and phone. He is also a consultant to many North American conventions and helped Exan develop the convention management software system used by CDA.

Janice Edgar joined the Convention Team in July 1989. As Convention Administrative Assistant she is involved in all aspects of convention preparation, marketing and liaising. She is also involved in the coordination of registration for the FDI Congress in Singapore this year. She holds a Bachelor of Journalism from Carleton University.

Marie Juneau recently joined the convention staff. She brings more than twenty years of convention organizing experience to the CDA. Marie will be handling, among other things, the convention delegate registration.

(inset) **Lisa Graziadei** worked with CDA Conventions for five months last year and handled hotel reservations and exhibits. From mid-April until the end of the 1990 Convention she will be performing these same duties. △



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CDSPI Reports



Practice Interruption Insurance

Practice Interruption Insurance is the equivalent of disability insurance for your practice since it keeps regular earnings flowing after it has been wholly or partially disabled by a fire or other insured peril. This continued income is just as important to a dental practice as is the continued income to an individual who is sick or injured. Although, as a professional, a dentist is not tied by location in order to earn a living, destruction or severe damage to the office could greatly impair income and increase expense in the short term.

Dental practices, like people, have "families" to support. They have employees, officers, owners/partners. Dental practices, like families, also have bills to meet such as taxes, rent/telephone, etc. They also have "doctors' bills" to pay to help them to get back on their feet in a hurry.

Practice Interruption Insurance supports these "families" and pays these bills just as the practice would have done had it been able to continue uninterrupted.

Just imagine what it would be like to waken at 3:00 a.m. and be told that your dental office was on fire. A frightening thought? Yes! But it could happen, and although the fire itself is a disaster, you have to face the fact that simple Office Contents Insurance cannot deal with all the problems you will be faced with.

There are a few steps that you can take to prepare yourself and your staff to cope with things if you are ever faced with a disaster of this sort.

Keep a list of patients' names, addresses and phone numbers at a sepa-

rate location so that you can keep them informed of alternative arrangements. Make sure that all vital documents such as medical and accounting records are kept in fire-proof filing cabinets and that they are securely closed at the end of every day. If you have a computer system, keep back-up discs/tapes at a separate location. Arrange alternative accommodation with another dentist in your locality for emergencies. (This can be done on a reciprocal basis.)

Keeping the practice going is what the whole exercise is all about, and once you have sorted out the immediate problems, you have the task of planning, rebuilding and maintaining the same high standard of patient care. Follow the procedures for claim reporting outlined in the CDIP Claim Information Kit and watch the Practice Interruption policy swing into action, coordinated by a professional Loss Adjuster.

If you have a fire or other disaster you will likely be faced with a number of costs during the interruption not normally encountered in a dental practice. Your Practice Interruption will cover these expenses, including:

1. The additional cost of temporary accommodation to continue your practice if possible.
2. Full wages for employees while you are unable to utilize them fully.
3. Extra expense incurred to reduce the period of interruption (such as overtime to contractors).
4. Expenses incurred to advise your patients of the interruption and alternative arrangements.

When deciding how much Practice Interruption Insurance you should carry, your first tendency might be to insure only the personal income portion of your gross billings, with no allowance for ongoing expenses. However, in many practices, the expense portion is more than 50 per cent of billings. During the interruption, some of your normal expenses will cease or reduce, such as laundry and lab fees; others may continue, such as rent and hydro. Unless the continuing portion of your expenses is also insured, you will have to pay these expenses out of your own pocket. When buying insurance, cover the entire risk — it is to your benefit.

One way to calculate your need for Practice Interruption Insurance is to multiply your total monthly billings, (pick the highest month), by four. Insure for this total amount as a *minimum*. In addition, you should include any anticipated increases in your billings for the next 12 to 18 months; remember, you are insuring your future earnings. Special circumstances, such as long delivery times for highly sophisticated equipment, may also warrant a higher amount of coverage.

Practice Interruption Insurance can be as important to you as your Office Contents Insurance should you ever be placed in an office claim situation.

By replacing your lost income and covering ongoing expenses, Practice Interruption coverage will ensure that you re-establish your practice quickly and with the least possible disruption.

Call CDSPI for further information or an application form. Δ

Unique AGD award



Dr. Oksana Sawiak

Dr. Oksana Sawiak of Mississauga, Ontario, is the first woman to attain the Academy of General Dentistry's Mastership Award.

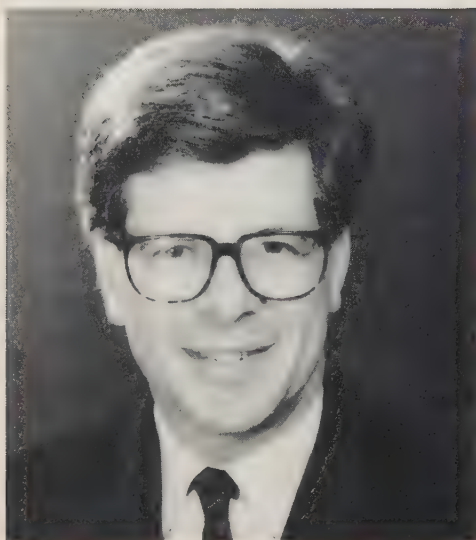
The presentation was made during a special ceremony at the AGD annual convention in New York City.

Only three Canadian dentists (including Dr. Sawiak) have received this award.

A graduate of the University of Toronto Faculty of Dentistry in 1966, Dr. Sawiak has been involved in hospital dentistry as an active staff member of the Mississauga Hospital since 1967. She is dental chairman of that hospital's Emergency Committee.

She is also a member of the teaching faculty of the Department of Oral Anatomy, Faculty of Dentistry, University of Toronto.

She speaks four languages — English, Ukrainian, Polish and German. △



Dr. Wayne Pulver

Dr. Wayne Pulver of Willowdale, Ontario, recently assumed the office

The ACTION Taking Place



The Canadian Dental Association recently signed formal contracts for renovations which will substantially enlarge office space at the CDA headquarters building in Ottawa.

In the top photo, CDA Director of Administration Joel Neal, left, discusses details of the contracts with Aivars E. Perkons, second from left, Senior Technical Designer with A.L. Epps Interiors, Inc., the firm which designed the renovated facilities; CDA Executive Director Jardine Neilson, and Mr. Gerald Garvey, extreme right, President of Garvey Construction Ltd., whose firm is carrying out the necessary reconstruction.

Mr. Neal and Mr. Neilson sign the Epps Interiors contract, centre, and Mr. Neal, Mr. Neilson and Mr. Garvey sign the Garvey Construction contract in the bottom photo. △

of President of the Ontario Society of Endodontists for 1990-91.

Other executive members of the Society are: Dr. Bruce Burns, Islington, Ont., the Past President; Dr. Keith Hunter, of

London, Ont., is the President-Elect; Dr. Cal. Torneck, of Toronto is the Treasurer, and the Secretary is Dr. Lionel Lenkinski of Etobicoke, Ontario. △

Dental Office Design

L'aménagement du cabinet dentaire

1. Acker, A.I. "Southern comfort in a beautiful setting." *Florida Dental Journal*. Spring 1988, v. 59(1), pp. 34-5.
2. Bonner, P. "Internal marketing of the dental practice." *Dental Clinics of North America*. Jan. 1988, v. 32(1), pp. 47-58.
3. Boutard; Gauthier; Navarro and others. "[A third type of office: orthodontics]" *Information Dentaire*. Apr. 1988, v. 70(17), pp. 1453-5.
4. Case, J. "Today's office design: more comfort and efficiency available." *Dental Management*. Aug. 1988, v. 28(8), pp. 48-51, 54-5.
5. Cash, R.G. "Sterilization and disinfection. Considerations in office design." *Journal of Clinical Orthodontics*. Mar. 1988; v. 22(3), pp. 170-5.
6. Combs, H.R. "The business side of design." *Dental Economics*. Aug. 1987, v. 77(8), pp. 42-6.
7. Combs, H.R. "Designing for patient comfort." *Dental Economics*. Aug. 1987, v. 77(8), pp. 55.
8. Epstein, C.F. "Enhancing the dental office environment for the elderly." *Dental Clinics of North America*. Jan. 1989; v. 33(1), pp. 43-50.
9. Friedman, M.H. "Office design for the temporomandibular joint and facial pain practice." *Quintessence International*. Nov. 1987, v. 18(11), pp. 803-4.
10. Hamula, W. "Orthodontic office design. Children's areas: an emerging trend." *Journal of Clinical Orthodontics*. Sept. 1988, v. 22(9), pp. 560-2.
11. Hamula, W. "Orthodontic office design. Skylights: the sky's the limit." *Journal of Clinical Orthodontics*. Jun. 1988, v. 22(6), pp. 378-81.
12. Hamula, W. "Orthodontic office design. Sound transmission and wall construction." *Journal of Clinical Orthodontics*. Jan. 1988, v. 22(1), pp. 32-8.
13. Hankin, R. "Are you having an identity crisis." *Dental Management*. Jan. 1988, v. 28(1), pp. 18, 20, 22.
14. Kay, E. "Design for today." *Dental Practice Management*. 1988, Spec No: 4-6.

15. Paul, E. and Posner, B. "Decor in the dental surgery." *Dental Update*. Jul.-Aug. 1987; v. 14(6), pp. 263-5, 267.
16. Pollack, R. "Form follows function." *Journal of the California Dental Association*. Feb. 1989, v. 17(2), pp. 17-20.
17. Register, J. "A look at office designs." *Florida Dental Journal*. Winter 1987; v. 58(4), pp. 4-7.
18. Sjoquist, K. "Improving productivity by design." *Dental Economics*. Aug. 1987, v. 77(8), pp. 49-50, 52.
19. Smith, T. "Dental office design." *Journal of the Colorado Dental Association*. Jul. 1988, v. 67(1), pp. 10-11.
20. Teitelbaum, M.J. "An office is not a home." *Tic*. Nov. 1987, v. 46(3), pp. 3-5.
21. Wilkinson, M.D. "Reception and office organization." *British Dental Journal*. May 20, 1989, v. 166(10), pp. 385-8.

Acquisitions

- American Dental Association, Department of Veterans affairs. Infection control in the dental environment, 1 binder, 3 video cassettes.
- Assael, Leon A. guest editor. Trauma (Oral and maxillofacial surgery clinics of North America vol 2 no. 1) Saunders, 1990.
- Schlossberg, Allan, guest editor. Controversies in dentistry. (The dental clinics of North America, Vol 34 no. 1) Saunders, 1990. Δ

One copy of the above package of articles is available for \$5.00 to all CDA members and for \$10.00 to non-members. (Ontario residents, please include 8% sales tax.)

LIBRARY SERVICES

As a convenience to all CDA members in the various time zones in Canada, it is now possible to call the CDA Library, between 4:30 pm and 8:30 am Ottawa time, in addition during regular library hours (8:30-4:30 EST)

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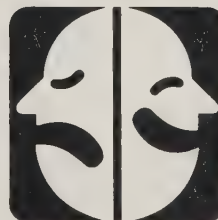
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OCCUSAL GUIDANCE IN PEDIATRIC DENTISTRY

Nakata, M. Wei, S.H.Y.

*Ishiyaku EuroAmerica Inc., Missouri, 1988
104 pages*

This short and easy to read book deals mainly with the importance of preserving the integrity of the arches in the primary dentition, correcting and guiding the occlusion during early stages of the development and, in general, promoting a smooth transition from the primary to the permanent dentition.

Drs. Nakata and Wei base their work on current concepts which may serve as a quick review of these up to date procedures to the dental student and the general practitioner involved with dentistry for children. It will not be of assistance though to the individual seeking the essence of theory and research, as the bibliography presented is extremely limited.

The strongest points of this book lie in the emphasis given to the importance of a comprehensive dental treatment in children, well timed early orthodontic procedures and the beautiful photographic work which makes this a didactic presentation.

Some of the topics that the reader will find are: a well sequenced set of the principles on occlusal development and guidance, some pathological conditions and their treatment, and the fabrication and use of simple orthodontic appliances. One must say that this publication falls short in giving a step by step description of the construction and use of these appliances.

In summary, this book could be considered as a synopsis and short color atlas of current concepts in occlusal guidance.

*This book was reviewed by:
R. Marti, DDS, MS
Faculty of Dentistry
University of Western Ontario,
London, Ont.*

DECISION MAKING IN ANESTHESIOLOGY

L.L. Bready and R.B. Smith

*B.C. Decker, Inc., Toronto; Ont.
C.V. Mosby Co. Ltd., Toronto (Distributor)
1987, 280 pages*

This hard-cover book is the first edition copy and is a real "gem". It has a clearly

stated purpose to present the process of anaesthesia management before, during and after surgery in an algorithmic, progressive, decision-tree format, thus encouraging systematic thinking. A total of 38 contributors have made contributions to this book, of these, two are dentists. Following a brief Introduction, which includes a List of Abbreviations that are used in the book, the book is divided into three major sections: Principles of Anaesthesia, Specialty Anaesthesia, and finally, Preoperative and Postoperative Complications. These three major sections are further subdivided.

For example, Section I, Principles of Anaesthesia, deals with 15 fundamental topics. The second Section, Specialty Anaesthesia, covers a wide range of procedures which require anaesthetic modification. This section, for example, contains discussions entitled, General Anaesthesia in Dentistry and Dental Injuries Associated with General Anaesthesia. Section III, Preoperative and Postoperative Complications, includes special considerations of problems which may occur in the recovery room, for example, as well as many other topics of interest.

In total, this publication presents one hundred and thirty-five case scenarios in a step-wise fashion. Each important therapeutic step in this progressive decision-making format is highlighted. The page facing each algorithm contains a more detailed but concise discussion of each step made in the algorithm. This explanatory section is directly referenced with the list of cited references presented at the bottom of each page.

This is an excellent book covering a diverse range of topics which include the difficult anxious patient, mitral valve prolapse, hypertension, AIDS, obesity, and even the anaesthetic implications for the patient who smokes cigarettes. The list of topics covered is broad and wide-ranging. It is presented in such a way as to consider patient preparation, induction, maintenance and monitoring of anaesthesia and the early detection and treatment of common and not-so-common complications. This book clearly states that it is not intended to replace major anaesthesia textbooks — in fact, a sound understanding of anaesthesia is essential to proper use of this book — nonetheless, this is an extremely useful book for anyone administering anaesthetics in a hospital or outpatient practice.

*This book was reviewed by:
Earle R. Young, BSc, DDS, BScD, MSc,
FADSA
Assistant Professor of Anaesthesia,
Faculty of Dentistry,
University of Toronto, and,
The Wellesley Hospital, Toronto.*

ESSENTIALS OF ANESTHESIOLOGY SECOND EDITION

David C. Chung
Arthur M. Lam

*W.B. Saunders Company
Toronto, 1990*

This is a soft cover book consisting of 294 fact-filled pages. It contains a Foreword written by one of the "big names" in Anaesthesia, Dr. T.F. Hornbein, and a Preface to the First and Second Editions. The 25 chapters which follow form a comprehensive, fundamental, and concise scientific basis for the practice of anaesthesia.

This book in no way is meant to replace traditional reading in the subject and certainly cannot replace practical experience. It is also not a "cookbook" list of techniques. This is a basic text designed primarily for clinical clerks, anaesthesia residents, as well as medical and dental interns, but would be useful for all students of anaesthesia. The Preface describes this book as a "companion" and indeed, its format and size allows it to be carried in a coat pocket for fast and easy reference.

The 25 chapters logically begin with a discussion of basic principles of pharmacology and anesthesiology and then proceed to a discussion of the pharmacology of a whole host of drugs commonly used in anesthesia practice. These include inhalation agents, intravenous agents, and local anesthetics.

Several chapters are then devoted to the actual use and maintenance of the equipment used in the delivery of anesthesia. Chapters on the administration of anesthesia (conscious sedation, general and regional anesthesia) follow. There are several excellent sections on preoperative patient assessment and preparation, monitoring, management of anesthesia-related complications and recovery room considerations.

Each chapter in this book is well illustrated but is not referenced in the body of the text. There is, however, one Appendix at the conclusion of the text entitled

"Further Reading". This Appendix is of necessity quite comprehensive. There are two other Appendices at the conclusion of the book: one on ASA (American Society of Anesthesiology) standards for patient monitoring, and the other on dosages of commonly used anesthesia drugs. The text concludes with a useful 15-page index.

For the past several years, this book has become an integral part of the anaesthesia residents' reading list. It contains not only a wealth of information that the beginner must acquire but also has useful material for the more advanced operator. This is one of those books that once read, will remain a constant source of information, and will be referred to often. I feel that anyone — dental or medical — who is working in an environment in which anaesthesia is being delivered, should have this excellent book.

This book was reviewed by:
Earl R. Young, BSc, DDS, BScD, MSc,
FADSA

*Assistant Professor of Anaesthesia,
Faculty of Dentistry,
The University of Toronto, and,
The Wellesley Hospital, Toronto.*

INFLAMMATION: A REVIEW OF THE PROCESS, 3RD EDITION

by H.O. Trowbridge and
R.C. Emling, 1989

Quintessence Publishing Co., Inc.

Inflammation is of undeniable importance in many oral diseases and familiarity with this process is necessary for appropriate diagnosis and treatment. In practice, most dentists have an intuitive understanding of inflammation solidly based on clinical experience; however, memories of scientific training in the pathologic basis of inflammation might be more distant. Thus, a book which is presented as a self-study manual, reviewing and updating basic theory in inflammation, could find a useful niche in continuing education.

The subject is organized into the standard format of acute and chronic inflammation, healing and immunity, which is found in most pathology textbooks. The basic concepts are thoroughly and lucidly discussed in 7 concise chapters of a 166 page, soft-covered book. However,

it should be noted that the detail is limited and references are not provided. This brevity could be a desirable feature or a shortcoming depending on the expectations of the reader. In this regard, the authors' recommendation of their book to practitioners and to graduate students preparing for speciality board examinations seems appropriate although the recommendation to graduate students would probably not apply to those in the basic sciences. Since the book, apparently, is intended primarily for a clinical dental audience, an unfortunate omission is the lack of practical correlation to the numerous and occasionally esoteric, inflammatory conditions of the oral cavity.

A promotional feature of this book is the special effort to produce a "user-friendly" format and to a large extent, this claim can be conceded. The illustrations are well designed and there are

highlighted summaries to emphasize major points. At strategically placed intervals, there are self-assessment tests. Of more doubtful value are the continuous offbeat and chatty comments, presumably intended to relieve the tedium of reading a complex explanation or possibly to make the subject appear less intimidating. The traditionally-minded reader could find this approach disruptive although others might appreciate these departures from the disciplined vernacular often associated with scientific writing. Nevertheless, this is a very readable book and it can be recommended to those wishing to review and update their basic theoretical knowledge.

This book was reviewed by:
Edmund Peters, DDS, MSc, FRCD(C)
Associate Professor
Department of Oral Biology
University of Alberta

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Fund	Unit values as at	
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Balanced Fund	28.11186	29.11071

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1 yr	12.55%	11.65%
2 yr	12.35%	11.60%
3 yr	12.30%	11.50%
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(*rates subject to change without notice.)

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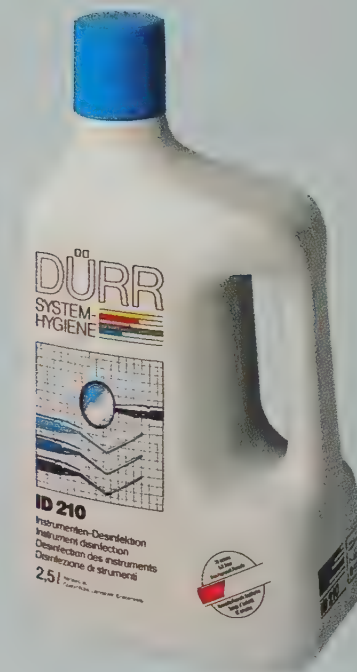
Now! Keeping Your Operatory Safe Is As Easy As 1 - 2 - 3...

1

INSTRUMENTS

ID 210

A premium quality disinfectant combining aldehydes and quaternary ammonium compounds to kill hepatitis B virus, mycobacterium tuberculosis, bacteria, HIV (AIDS) and fungi in 10 minutes. Cold sterilization in 4 hours. Many professionals make ID210 their first choice for its economy. The 2.5 litre concentrate makes 62.5 litres of long lasting working solution at a cost of approximately \$1.89 per litre.



2

SURFACES

FD 320

The only surface spray disinfectant with the high level hospital grade disinfectant agent glutaraldehyde in combination with ethanol and propanol. Ten minute kill time for mycobacterium tuberculosis, HIV (AIDS) and Hepatitis B virus. May be sprayed directly onto large surfaces or sprayed onto a wiper first for smaller areas.

Clinicals Upon Request : Call your Dental Dealer today for copies of clinical studies and research reports.



SCI-CAN
Division of Lux & Zwingenberger Ltd.

Division of Lux & Zwingenberger Ltd.,
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Tel: (416) 368-8665 Fax: (416) 368-2099

3

HANDPIECES FD 322

The only handpiece manufacturer approved disinfectant for standard and fibre optic handpieces and accessories. Works in ten minutes to kill bacteria, fungi, HIV (AIDS), mycobacterium tuberculosis and Hepatitis-B virus. FD322 is tried and proven in use to eliminate risks when you cannot sterilize handpieces.



4

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Excellent disinfectant and non-foaming detergent solution with solubilizers to break away "heavy" entrapments of tissue and debris in 3 minutes. Unique OROTOL dispenser aspirates the solution with air to provide more physical turbulence in the high volume and saliva ejector hoses for even better cleaning.



5

ULTRASONIC CLEANER ID 215 with ID 210

Now instruments can be disinfected and cleaned in ultrasonic units. The special detergent action of ID215 removes blood, tissue and protein from instruments and is compatible with ID210 for effective instrument disinfection. A solution of 2% each of ID210 and ID215, plus 96% water, cleans and disinfects in 15 minutes.



The DAP Advisor

The DAP Advisor offers information, ideas and advice to improve dentist/patient communication, raise awareness about good dental health, and help your practice become busier.

CALLOUT: From beginning to end, the typical dental visit is packed with opportunities to communicate with the patient. It is up to you and the members of your dental team to make the most of them.

Patient Communication: Opportunities Knock

The typical dental visit affords you and your team a wealth of communication opportunities. In fact, from the moment the patient approaches your office, to the moment he/she departs, you and the members of your dental team have the chance to reach out and communicate. What do you need to make the most of these communication opportunities? Well, it helps to have a commitment to interactive communication; a belief that the patient comes first; enthusiasm; sensitivity; and the active participation of every dental team member.

Here, in sequence, are some of the patient communication opportunities in a typical dental visit of which you and your team can take advantage:

1. The Door

The patient approaches the door of your office. A blank door communicates nothing about your practice. A door that has information on it, however — for example, one with your name, office hours, signs saying "Please Walk In", and "in case of emergency call . . .", and a message promoting good dental health — is far more inviting. It also conveys that yours is a caring, accessible practice. For first time patients, a "communicative" door provides a good first impression. For regulars, such a door can help reinforce confidence in your practice. For both, the door helps set the tone for what is to follow.

2. The Reception Area

The patient enters the reception area. In all likelihood, the first person he/she sees is the receptionist — the frontline member of your dental team. The receptionist can help establish rapport and put the patient at ease by greeting him/her warmly by name, and offering to answer any questions the patient might have. As the patient looks around, the room itself can convey a great deal about your practice. If the room is attractive and comfortable, it can contribute to the patient's sense of security. What about the walls? Blank walls and even those adorned with decorative pictures are not very communicative. Walls that say something, however — ones with bulletin boards containing pertinent and interesting dental information or a poster promoting good dental health, for example can take advantage of the opportunity to communicate. So can the reading material on good dental health you have thoughtfully provided in the waiting room. The patient's attention can be directed to this material by the receptionist, who can also encourage him/her to bring any questions that might arise from reading it along to the next stage of the visit.

3. The Operatory

The patient's name is called — the cue that treatment is about to begin. For some patients this can be an unnerving experience. You, your hygienist and your dental assistant can help make it less so by doing everything in your power to ease them through treatment. A patient is much more likely to feel comfortable with their situation if they are apprised of what you are going to do before you do it, and if you discuss things with them at eye level instead of looming above them. After treatment, you have the perfect chance to engage in dialogue with the patient — to talk over their dental health and solicit any questions they might have. In so doing, you help educate and inform them, as well as build and/or consolidate rapport.

4. On the Way Out

Treatment completed, the patient once again finds him/herself in the reception area. However, the opportunity to communicate is not over until the patient is out the door. At this point the receptionist — the frontline team member who also happens to be your practice's last line of defence — has the chance to ensure that the entire dental visit lingers in the patient's mind as a pleasant memory. First, there is the matter of payment. Patients are apt to feel that treatment is expensive, so it is vital that the bill clarify what they are paying for. The patient should also be clear on your payment policy. Is yours easy to understand? Is it written from the patient's perspective? Equally important, has the receptionist offered to explain both the bill and the payment policy and given patients the chance to ask about anything that is unclear or confusing. Taking these steps helps ensure patient satisfaction with the dental visit — and increases the likelihood that he/she will return.

Then there is the question of booking the patient's next check-up. There are different schools of thought on the subject and different recall approaches. Whichever you choose to use, it will help if the patient is aware of your procedure and has a good idea of what to expect.

5. The Door Revisited — and After

Exiting the reception area, the patient closes the office door. On it, along with all the other messages, is a simple sign that says "WE WELCOME REFERRALS." This can plant an idea in the patient's head. If the patient is pleased with your practice, he/she may well pass on the good word about it to family, friends, and others.

Conversely, a dissatisfied patient may broadcast their displeasure. Unfortunately, you may not always hear about it. So follow up on no-shows and patients who fail to book recalls. In that way, you can help keep the lines of communication open between your practice and your patients, and take appropriate action to help ensure patient satisfaction in future.

The DAP Advisor is a service of CDA's Dental Awareness Program, an ongoing campaign dedicated to helping all Canadians keep their teeth Good For Life.



Help for El Salvador

No doubt you have heard about events over recent months in El Salvador — the bombings and devastation that has particularly affected the poorest people.

The Centre for Cooperation with El Salvador, of which we are a subsidiary, undertakes humanitarian aid projects in El Salvador, many of which are coordinated through the University of El Salvador in San Salvador (UES).

We have been notified of several emergency projects in recent weeks, some of which concern dental services. For this reason I am writing to see if the Canadian Dental Association can provide some help.

The projects are the following:

1. Through the Faculty of Odontology at the University of El Salvador, to provide dental care in poverty areas where a high population lives.
2. Provision of dental equipment for preventive and remedial treatment in a community dental clinic.

There is a desperate need for help in these two projects and others, and I ask you to consider helping us to support these projects for these communities and the University.

It might be of help if you could include an item about this in your association's Journal. I understand equipment changes are frequent and that dentists are frequently willing to help in underdeveloped areas.

I would be grateful if you can give some thought to this and look forward to your response. Thank you in advance.

Fiona M. Hanley, RN,
Centre for Cooperation with El Salvador
c/o 9207 - 117 Street,
Edmonton, Alta. T6G 1S3

An alert reader

CDA Journal, Vol. 56 No 2, page 86 (February, 1990). With reference to column One (last paragraph), I humbly submit that in Col. II "resemble" should have only one "s".

(Operative word — humbly!)

Dr. J. J. Mitchinson,
Niagara Falls, Ont.

Editor's Note: Again we are grateful to Dr. Mitchinson's "eagle eye" and editing prowess. He was the only person to point out our intended misspelling error "resemble".

Congratulations on February article

I sincerely wish to congratulate Dr. Jack D. Dale for the article on Dr. Roy Gilmore Ellis he published in the February 1990 issue of the Journal.

Both form and content are of an exceptional quality!

The French translation is impeccable.

I knew Dr. Ellis well and the article written about him wonderfully depicts the man he was.

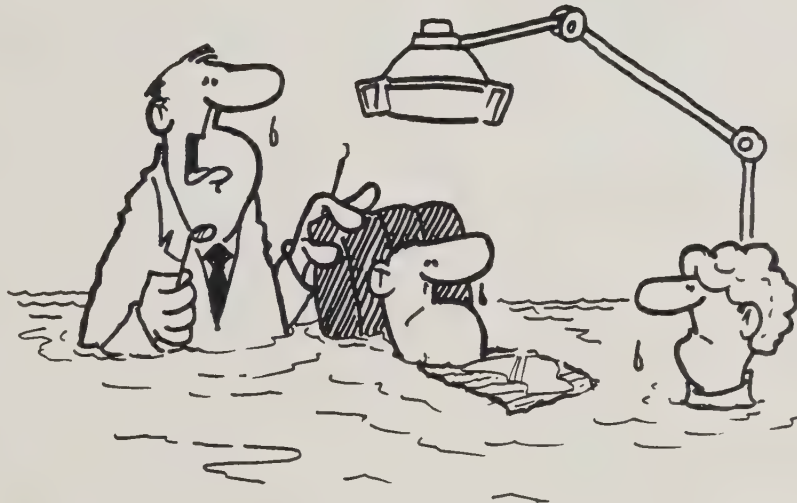
Gérard de Montigny
Professor of Dentistry
Université de Montréal

P.S.: I have served twice as a French Editor for the Journal, and once for a 17-year period.

American Dental Association
131st Annual Session
October 13-18, 1990



A Heritage of Progress



"NURSE, WOULD YOU HAVE MAINTENANCE TAKE A LOOK AT THE WATER PRESSURE!"

Continuing Education

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LOCATION/ DATE	COURSE TITLE	SUBJECT AREA	INSTRUCTOR	REGISTRATION	FEE	AUDIENCE
The Pines Resort Digby, N.S. July 13-15, 1990	Coping with success	Stress Management	Dr. Ian Vogan	Limited to 60	\$190	GPs Specialists Assistants Hygienists Spouses

SPONSORED BY: MCGILL UNIVERSITY FACULTY OF DENTISTRY		740 Docteur Penfield Blvd. Montréal, Qué. H3A 1A4	CONTACT PERSON/TELEPHONE: Mrs. Olga Chodan (514) 398-7221			
LOCATION/ DATE	COURSE TITLE	SUBJECT AREA	INSTRUCTOR	REGISTRATION	FEE	AUDIENCE
McGill University 14/9/90	Management of teeth with impaired alveolar support — retention or osseointegration?	Prosthodontics	Dr. Harry Rosen	(1/2 Day)	\$95	General Practitioners, Specialists
McGill University 5/10/90	The continuing evolution of restorative materials	Restorative Dentistry	Dr. Ivan Stangel	Full Day — hands on	\$225	General Practitioners, Specialists
McGill University 26/10/90	Occlusion and TMJ dysfunction: Is there a relationship?	TMJ	Dr. Andrew Pullinger	Full Day	\$190	General Practitioners, Specialists

SPONSORED BY: THE ONTARIO DENTAL ASSOCIATION		4 New Street, Toronto, Ont. M5R 1P6	CONTACT PERSON/TELEPHONE: Teresa Fiorini (416) 922-3900			
LOCATION/ DATE	COURSE TITLE	SUBJECT AREA	INSTRUCTOR	REGISTRATION	FEE	AUDIENCE
June 8, 1990 Peterborough, Ont.	Beyond Words: Patient Communication that Works	PM 110	Mark Sarnier, Manifest Communications		\$200.00 \$ 65.00	Dentists Auxiliaries
June 8, 9, 1990	Functional Appliances and Class 11 Treatment	Ortho 202	Paul Levin, DDS, Dip. Orthodontics Michael Patrician, Dip. Orthodontics		\$550.00 \$210.00	Dentists Auxiliaries
June 14, 15, 16, 1990 Toronto, Ont.	Nitrous-Oxide Oxygen Conscious Sedation	Anaes 300	Kevin Dann, BSc, DDS, BScD(An) Steven Small, DDS		\$650.00	Dentists
September 7, 8, 1990 North Bay, Ont.	Clinical Periodontics for the Dentist	Perio 101	Philip Novack, BSc, DDS Marvin Budd, DDS		\$275.00 \$210.00	Dentists Auxiliaries

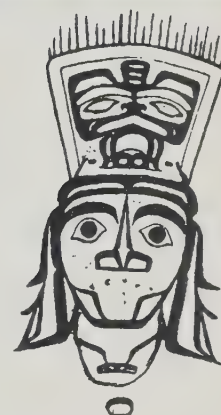
September 14, 1990 Renfrew, Ont.	Beyond Words: Patient Communication that Works	PM 110	Mark Sarner, Manifest Communications	\$200.00 \$ 65.00	Dentists Auxiliaries
September 14, 15, 1990 Toronto, Ont.	Orthodontics for the General Practitioner	Ortho 201	Michael Sirisko, BSc, DDS, PhD Tom McIntyre, DDS	\$550.00 \$250.00	Dentists Auxiliaries
September 28, 1990 Brockville, Ont.	How to Attract Patients and Keep Them	PM 109	Lily S. Tsambalieros-Hilton, BSc, DDS	\$195.00 \$ 65.00	Dentists Auxiliaries
September 28, 1990 Oshawa, Ont.	The TMJ Dilemma: An Update	TMJ 101	G.D. Lague, DDS	\$195.00 \$ 65.00	Dentists Auxiliaries
September 29, 1990 Toronto, Ont.	TMJ Splint Workshop	TMJ 201	John D. Marotta, BSc, DDS, MAGD, FICD, FADI	\$375.00	Dentists
October 12, 1990 Sault Ste. Marie, Ont.	The Hygiene-Driven Practice	PM 107	Jennifer Thomas, BASoc, RDH	\$195.00 \$ 65.00	Dentists Auxiliaries
October 19, 1990 Sudbury, Ont.	Dental Risk Management	PM 108	David J. Kenny, BSc, DDS, PhD	\$195.00 \$ 65.00	Dentists Auxiliaries
October 19, 20, 1990 London, Ont.	Nitrous-Oxide Oxygen Conscious Sedation	Anaes 300	Kevin Dann, BSc, DDS, BScD(An) Steven Small, DDS	\$650.00	Dentists
November 9, 1990 Stratford, Ont.	The TMJ Dilemma: An Update	TMJ 101	C.D. Lague, DDS	\$195.00 \$ 65.00	Dentists Auxiliaries
November 10, 1990 Stratford, Ont.	TMJ Splint Workshop	TMJ 201	John D. Marotta, BSc, DDS, MAGD, FICD, FADI	\$375.00	Dentists
November 15, 16, 17, 1990 Toronto, Ont.	Nitrous-Oxide Oxygen Conscious Sedation Course	Anaes 300	Kevin Dann, BSc, DDS, BScD(An) Steven Small, DDS	\$650.00	Dentists
November 16, 17, 1990 Toronto, Ont.	Functional Appliances and Class 11 Treatment	Ortho 202	Paul Levin, DDS, Dip. Orthodontics Michael Patrician, Dip. Orthodontics	\$550.00 \$210.00	Dentists Auxiliaries
November 17, 1990 Toronto, Ont.	Participation Course in Local Anaesthesia	Anaes 201	Mel Hawkins, DDS, BScD(An)	\$375.00 \$ 65.00	Dentists Auxiliaries
November 23, 1990 Kitchener/ Waterloo, Ont.	The Hygiene-Driven Practice	PM 107	Jennifer Thomas, BASoc, RDH	\$195.00 \$ 65.00	Dentists Auxiliaries
November 23, 1990 Hamilton, Ont.	Dental Risk Management	PM 108	David J. Kenny, BSc, DDS, PhD	\$195.00 \$ 65.00	Dentists Auxiliaries
November 23, 1990 Windsor, Ont.	Beyond Words: Patient Communication that Works	PM 110	Mark Sarner, Manifest Communications	\$200.00 \$ 65.00	Dentists Auxiliaries
November 24, 1990 Owen Sound, Ont.	Participation Course in Local Anaesthesia	Anaes 201	Mel Hawkins, DDS, BScD(An)	\$375.00 \$ 65.00	Dentists Auxiliaries

SPONSORED BY: UNIVERSITY OF WESTERN ONTARIO FACULTY OF DENTISTRY			Room 1003, Dental Science Building London, Ontario N6A 5C1		CONTACT PERSON/TELEPHONE: Ms. Najet A. Hassan (519) 661-3902	
LOCATION/ DATE	COURSE TITLE	SUBJECT AREA	INSTRUCTOR	REGISTRATION	FEE	AUDIENCE
October 11, 12, 13, 1990 London, Ontario University of Western Ontario	Nitrous-Oxide Oxygen- Conscious Sedation	Anesthesia Pain Management	Dr. Ian Schofield	Limited (20)	\$450	General Practitioners Specialists
University of Western Ontario November 3, 1990	Paediatric Dentistry Update	Paedodontics	C.R. Castaldi G.Z. Wright		\$195	General Practitioners
University of Western Ontario November 9-10, 1990	Laser Therapy and Its Application	Oral Surgery	Dr. Robert Pick Dr. G.Z. Wright		\$395	General Practitioners
University of Western Ontario November 22-24, 1990	High Tech Root Canal Preparation and Obturation	Endodontics	Dr. Howard Martin	30	\$295	General Practitioners
Tampa Florida	Symposium South	General Dentistry	Faculty & Guest Lecturers		\$525 \$250	General Practitioners Auxiliary
University of Western Ontario November 30- Dec. 1, 1990	Esthetic Operative Dentistry	Operative	Dr. Makato Suzuki	20	\$395	General Practitioners
University of Western Ontario December 6-8, 1990	Crown & Bridge Back to Basics	Fixed Prosthodontics	D.R. Gratton	Limited (10)	\$600	General Practitioners

SPONSORED BY: CONTINUING PROFESSIONAL EDUCATION, FACULTY OF DENTISTRY, UNIVERSITY OF ALBERTA			Dental/Pharm. Bldg. Edmonton, Alberta, T6G 2N8		CONTACT PERSON/TELEPHONE: Dr. Steve Patterson, Ms. Debbie Grant (403) 492-5023 or 492-8240	
LOCATION/ DATE	COURSE TITLE	SUBJECT AREA	INSTRUCTOR	REGISTRATION	FEE	AUDIENCE
October 13/90 Calgary, Alberta	Early Diagnosis and Treatment of Orthodontic Needs	Orthodontics	Dr. Glover Dr. Major Dr. Carlyle		T.B.A.	General Practitioners Specialists
October 20/90 Edmonton, Alberta	Early Diagnosis and Treatment of Orthodontic Needs	Orthodontics	Dr. Glover Dr. Major Dr. Carlyle		T.B.A.	General Practitioners Specialists
October 27/90 Edmonton, Alberta	Innovations in Endodontics	Endodontics	Dr. Beatty Dr. Holland		T.B.A.	General Practitioners Specialists
November 3/90 Calgary, Alberta	Advancing Instrument Sharpening Skills	Dental Hygiene	Ms. Pimlott Ms. Schulte Ms. Eastwood	Limited Attendance	T.B.A.	General Practitioners Hygienists Assistants

November 17/90 Edmonton, Alberta	Current Procedures in Infection Control	Infection Control	Dr. Hardie	T.B.A.	General Practitioners Hygienists Assistants Specialists
November 23-24/90 Edmonton, Alberta	Current Management of T.M.J. Patients	T.M.J.	University of Alberta T.M.J. Clinic Team	T.B.A.	General Practitioners Hygienists Assistants Specialists
November 30/90 Calgary, Alberta	What's New in Periodontics	Periodontics	Dr. Frydman Dr. MacDonald	T.B.A.	General Practitioners Hygienists Assistants Specialists

JOB POSTING AVAILABLE IMMEDIATELY



Dentist required in New Aiyansh, B.C. in a fully equipped Dental Suite (3 operatory). (Newly furnished).

Fee for service or salary with excellent benefits package available, including attractive pension plan.

Where: New Aiyansh in Northwestern British Columbia, including services for:

1. Greenville
2. Nass Camp
3. Gitwinksihlkw
4. Kincolith

Dentist will be responsible for providing service in a New Publicly funded and Well Equipped Diagnostic and Treatment Centre, based in New Aiyansh.

The Diagnostic and Treatment Centre is fully staffed, and Provides Treatment and Public Health Services to Multi-Cultural Family Oriented communities, with a total population base of approximately 3 500. Communities are Predominantly Aboriginal.

Positions is open to individual who may enjoy outdoor recreational activities. Excellent hunting, fishing, and hiking available.

Proof of Certification by the College of Dental Surgeons in British Columbia is requested. Ability to work in a team setting and report to an elected community board is required.

Single and family unit accommodations will be made available compliments of the Nisga'a Valley Health Board. Relocation costs will be considered including expenses related to interviews, for those seriously considering this exciting new challenge.

For further information including a detailed description, salary range, and overviews of the Nass Valley, please contact:

**Floyd A. Davis, Administrator or
Mr. Reginald Percival, Executive Director**

and submit a Curriculum Vitae and letter of application to:

**Nisga'a Valley Health Board
P.O. Box 724
Terrace, B.C. V8G 4C1
FAX: (604) 633-2512**

Phone (604) 633-2212

Ottawa 1990

Highlights of the 1990 Convention Program

A Symposium on Pain

graciously presented by

Faculty of Dentistry

University of Toronto

Tuesday, August 28th

A successful dental practice is dependent upon the practitioner's ability to diagnose, treat and control dental pain. Speakers from the University of Toronto have developed a series of lectures that will attempt to present to the audience the general concepts of pain mechanisms, their control and the specific factors that give rise to physiological and pathological dental pain. In this latter segment, emphasis will be placed upon the features that distinguish both so as to aid the practitioner in establishing a differential diagnosis.

Second to dental pain in incidence and of equal importance to the practitioner is the pain associated with temporomandibular joint dysfunction. The various causes of this type of pain and the current philosophies in their management will be described using actual case histories as the model.

To round out the presentation, the pharmacological control of pain will be highlighted in a manner that is designed to be of practical value to every practising dentist.

While structured, the presentations delivered during this symposium will be informal and will invite running comments and questions from the audience. The day will end with a question and answer period in which all presenters will participate.

Tuesday AM



Barry Sessle,
B.D.S., M.S.D., Ph.D.

Toronto, Ontario

Mechanisms of Pain and Its Control

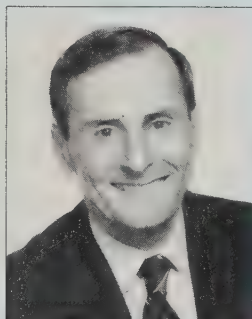
Tuesday PM



Howard Tenenbaum,
D.D.S., Ph.D.

Toronto, Ontario

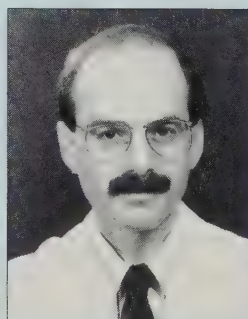
Diagnosis and Management of
Temporomandibular Pain



Calvin Torneck,
D.D.S., M.S., F.R.C.D. (C)

Toronto, Ontario

Toothache – What it Should Mean to the
Practising Dentist



Daniel Haas,
D.D.S., Ph.D.

Toronto, Ontario

Modern Approaches to
Pain Control

Ottawa 1990: Convention Countdown

Scouting for CDA



As you may already know, according to Tradeshow Week, the Canadian Dental Association's annual convention is the fastest growing medical convention in the country! In 1989 CDA's convention attendance was up 167%!

No matter how much time, money and effort the CDA invests while preparing for its annual convention, or how many volunteers offer assistance on site, or how big the scientific program, or how large the exhibit hall, there is no convention without delegates. So to us, YOU, the delegates, are very important because the people who contribute most to the success of any convention are the delegates.

The scientific program, the social program and the entire structure of this year's convention has been modified to reflect the suggestions made by past delegates. Much of the feedback received from 1989 delegates was very encouraging, a few attendants were harsh in their judgement - but nonetheless we *did* listen, respond and incorporate many of the suggestions we received.

While attending the Ottawa Convention please help us to further improve the CDA's Annual Convention. Jot down your impressions while on-site and, when it's all over, drop us a line to share your experience. After all it is YOUR convention and an important part of how the CDA is judged throughout North America and the world.

In Convention language, we call the process of analyzing and providing feedback 'scouting'. It is a process which many convention organizers engage in regularly when attending other conventions.

As scouts, convention organizers evaluate the quality of speakers, check out the variety of the social programs, share experiences with other organizers, look for new speakers, products, exhibits and constantly search and discover what's new in dentistry so we may bring all that's exciting and new back to our own convention. So share your convention experience and be a CDA scout at the 1990 Ottawa Convention.

*Michel Jahjah, D.D.S.
General Chairman
CDA Conventions*



Ottawa, the nation's capital, as seen from Hull, Quebec.
(Industry, Science and Technology Canada photo)

Ottawa 1990

Summer in the Capital



July 1st fireworks on Parliament Hill
(Industry, Science and Technology Canada photo)

Summer in Canada is a warm, wonderful season — the days are longer and sunny, the evenings warm and balmy. In Ottawa summer is a season-long celebration. After a long winter, Ottawans love to take advantage of the warm weather, spending time outdoors discovering and enjoying fine surroundings.

Ringed by the Green Belt and situated at the junction of the Ottawa and Rideau Rivers, Ottawa's location is picture-perfect. The Rideau Canal becomes a hive of activity for all ages — recreational enthusiasts and sightseers can be seen jostling along its borders, enjoying the season's warmth and beauty.

Conservation enthusiasts who visit Ottawa are met with the opportunity to discover two noteworthy conservation zones: Stony Swamp, a marsh literally brimming with bird and animal life and Mer Bleue, an ancient peat bog left behind by the last Ice Age of Canada, nearly 10,000 years ago. Both areas are accessible by trails and boardwalks.

Both the Ottawa River Parkway and Colonel By Drive (alongside the Rideau Canal), offer cyclists plenty of space to roam and explore. Bicycle paths, wide grassy spaces and picnic areas shaded by magnificent old trees offer ideal summer-time getaways. Cyclists of all ages are invited to take full advantage of these two routes on Sunday mornings — automobile traffic is not permitted until after 1 pm on Sunday.

After exploring the city, visitors can hop over the Ottawa River and discover Gatineau Park. Sparkling lakes and rivers, campsites, picnic grounds, hiking trails and bicycle paths offer excellent venues for summer-time fun. The ancient forest-covered rocks of the Gatineau Hills which form part of the southern edge of the Canadian Shield, are a refuge for city-dwellers year-round. Some brave souls even take hang-gliders up to the edge of the Eardley Escarpment — a dramatic wall of rock that rises up along the western boundary of the park.

West of Ottawa, Lanark County provides free maps and route descriptions for five scenic "Byway Tours" — tours which lead you to historical landmarks, a restored stone mill, great picnic areas, craft boutiques, home-made ice cream, cheese shops, antique hunting and rustic country inns.

For those who prefer more action - not far up the Ottawa River lies one of North America's top whitewater areas. One- to four-day rafting trips are available for those possessed by the spirit of adventure.

Summer in the capital is also festival time. Free open-air concerts are offered most evenings at Astrolabe (just behind Parliament Hill). The Ottawa Jazz Festival is located near the National Arts Centre which is next to the Rideau Canal.

Whatever your vacation interest — the fresh outdoors, fine dining, shopping, sightseeing, culture, family activities — they are all waiting for you in Ottawa and Hull. Plan to attend the 1990 Canadian Dental Association Convention — and experience summer in the Capital!

Special thanks to the publishers of Ottawa's Business and Leisure magazine and Canada's Capital Visitors and Convention Bureau for providing reference material.

How to Look at Software

INTRODUCTION: Automation is an integral part of the business evolution of the '80's and '90's and dentistry is no exception. Insurance companies are rapidly considering Electronic Data Claims. The age of electronic systems is here. Are you ready? Do you have the information you need to make your decision? Dr. Bud Sipko and Dr. Ralph Crawford have teamed to provide the dentists of Canada with information to assist in the education of the dental community towards computerization. This second of a series of nine articles on Automation in Dentistry provides some initial guidance and criteria for the software shopper.

Do you remember the first time you looked at an x-ray? Did it make much sense? What about the first time you applied a new clinical technique in your practice? Awkward? Usually! Looking at computer software can be equally as awkward an experience. Walking up to the booth of a computer company at a convention provides you with an initial opportunity to start to familiarize yourself with the system. I say "start" sincerely, because it will take hours in front of the screen to become truly knowledgeable.

Consider your situation against that of the computer sales person. His or her objective is to convince you that he/she has the solution to your automation requirements. Yours is to assess the software. You will, however, have to deal with all of the other sensory stimuli — the hardware, the set-up, the sales person, the colour of the screen — it goes on and on. As the analyst, you need to remember that many of those stimuli will not be there as your day to day work transpires.

How to Learn

Software is the term used to describe the program written to allow the computer to interpret the data and create a function from it. It is the "art form" of the automated system. Software is the most important part of a dental computer, for it's in the software that utilization occurs. Therefore to sit and look at screens would be analogous to looking at impression material set. You'll want to look at results — that is, the reports that are available to you. You can always look at the screens later!



Dr. Bud Sipko

Create Situations

Bring to your demonstration actual case studies (circumstances that occur in your office now). Be ready with your story. Share it and ask for an answer to how the software you are viewing would respond. Look at the result. Watch the number of key strokes used, the number of screens involved, the speed at which the computer responded.

Enquire as to the size of the data base in the computer. Remember that degradation (decrease in speed) is an inevitable part of networks (LAN's) and increased data bases.

If this is your first view, remember you have nothing to compare it to. Ask yourself — did the sequence seem logical, was there a reasonable flow? How much would we have to change in our systems in order to make this work in our practice? While there will never be software designed to do everything you like to see done in the way you want for the money

you want to spend — any more than there will ever be a perfect marriage — you are looking for the best and most compatible "match" for your needs.

Now What Do I Do?

Having viewed your first software system, you are now obligated to view more. And to compare the applications. Remember there is more to automation than the entry of procedures and the generation of insurance forms. Keep reviewing the functions of your office and the information you would like. Perhaps another staff meeting might help.

At this stage, consider these stem sentences as you look for more feedback about what needs to be done:

For Front Desk Receptionist:

- 1) One report (system) that is difficult for me to prepare is _____.
- 2) One report (system) that I would value receiving is _____.

For Dental Assistants:

- 1) I believe I could help the practice be more productive if I could use the computer for _____.

Sooner or later the team needs to be involved in the software selection. Their assessment and feedback will be invaluable in your search for the best integrated application. Δ



Bud Sipko is a private practitioner in Richmond, B.C. Besides having a dental practice, he is the President of two allied businesses: Selection Research (BC) Inc., a consulting organization to the dental profession which specializes in helping dentists and staffs become more effective as healthcare practitioners, and HealthCare Communications, a computer software company marketing automation solutions to the health care private practitioner.

GST Leasing Update

On January 1, 1991 the Federal Government's new Goods and Services Tax will replace the current federal manufacturers sales tax. As often occurs with proposed changes in law which contain substantial changes from the current practice, confusion and uncertainty prevail.

This was certainly the case with regards to leasing. The government proposed three phases for leasing. Leases entered into prior to August 1989 were exempted. A transition period from August 1989 to December 31, 1990 calling for GST to be applied to lease payments starting January 1991. Leases starting after January 1991 calling for GST on the lease payments instead of the cost of equipment which is similar to provincial sales tax.

Our concern was for leases written during the transition period. Both FST and GST would be charged which would result in a most unfair and discriminatory form of DOUBLE TAXATION. This would be particularly punitive for the health practitioners who are exempt.

As a result Medi-Dent, with the cooperation and assistance of the CDA, CMA, ODA and various manufacturers and suppliers of medical and dental equipment, took it upon itself to make special representation to the Government of Canada, to attempt to correct this impending inequity.

We are pleased to report that we were successful!

As a result of our efforts the draft GST legislation has been amended and now equipment leased by the health practitioner between August 1989 and December 31st 1990 will not be subject to GST until January 1, 1994.

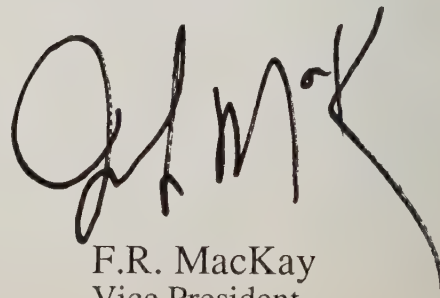
We at Medi-Dent would like to give our special thanks to the CDA, CMA, ODA and to those equipment manufacturers and suppliers who aided and supported us in this effort.

We believe that these changes to the GST restore and maintain all of the traditional benefits and advantages that are provided by leasing, and are prepared to work with any doctor wishing to acquire equipment to structure a program that could eliminate the impact of future GST.

Sincerely,



L.W. Maddison
Senior Vice President



F.R. MacKay
Vice President

An Endodontic Self-Assessment Quiz

Dr. Marshall Peikoff
Chairman of Resource Committee
Canadian Academy of Endodontics

INSTRUCTIONS

Please read the questions and record your answers. Select only one answer per question that you feel is the most correct. Having completed the quiz, you will find the correct answers, explanations and references on page 517. We hope this will be a valuable learning experience.

This self assessment quiz in endodontics has been compiled by the Resource Committee of the Canadian Academy of Endodontics as a service to the profession.

This resource committee is comprised of the heads of the endodontic sections of the Canadian Dental Schools. The schools which participated in developing this quiz are; the University of Alberta, the University of Manitoba, the University of Saskatchewan, the University of Toronto, McGill University, the University of Montreal, Laval University and Dalhousie University. The chairman of the resource committee is Dr. Marshall Peikoff of the University of Manitoba.

Representative questions have been proposed from within general areas of endodontics. The questions attempt to cover some new aspects of endodontics as well as to clarify some misunderstood concepts. The correct answers are given on page 0 as well as an explanation of the answer. Several references will also be given so the reader may follow-up any areas of interest or where further explanation is deemed necessary.



Dr. Marshall Peikoff

- e. Recapitulating in order to avoid canal blockage
2. **Extreme caution should be taken when utilizing intracanal rotary instruments such as Gates-Glidden drills, especially in:**
 - a. The floor of the pulp chamber
 - b. The distal wall of the mesial canals of mandibular molars
 - c. The cervical area of maxillary canines
 - d. The palatal canal of maxillary molars
 - e. The orifice of mesiolingual canals of maxillary molars.
3. **The clinical endodontic examination should routinely include:**
 - a. Percussion, anesthetic test, thermal tests
 - b. Periodontal examination, test cavity, palpation
 - c. Palpation, thermal tests, percussion
 - d. Anesthetic test, electric pulp test, percussion
4. **Palpation is useful as a diagnostic test because it helps to:**
 - a. Determine if the periapical inflammatory process has penetrated the cortical bone.
 - b. Differentiate between lateral versus periapical pathosis.
 - c. Allow for a periodontal assessment without probing.
 - d. Indicate whether there is inflammation of the periodontal ligament.
5. **In endodontic diagnosis, the electric pulp tester can be utilized to:**
 - a. Give a quantitative indication of the status of the pulp.
 - b. Determine whether there is vital tissue in the pulp or not.
 - c. Give more reliable and reproducible responses than thermal tests.
 - d. Give consistent responses from tooth to tooth.
 - e. Provide enough information on which to base therapeutic decisions.
6. **Periapical granulomas are chronic inflammatory lesions which:**
 - a. Respond to non-surgical root canal treatment whereas periapical cysts must be treated surgically.
 - b. Are the most frequently encountered periapical lesion.
 - c. Do not necessarily require active treatment.
 - d. Can be recognized and differentiated from radicular cysts radiographically.
 - e. Have a dense microbial flora.
7. **For treatment of a penicillin resistant organism in an odontogenic infection, the antibiotic of choice should be:**
 - a. cloxacillin
 - b. tetracycline
 - c. clindamycin
 - d. erythromycin
 - e. ampicillin
8. **Most odontogenic infections that do not respond to penicillin therapy are usually caused by:**
 - a. A penicillinase producing anaerobe
 - b. Anaerobic gram negative rods
 - c. A mixed bacterial flora
 - d. A compromised host resistance
 - e. Yeasts

9. A patient calls your office stating that their twelve-year-old child just had his front tooth knocked out five minutes ago and they have the intact tooth. Your immediate instructions to the parent should be:
- put the tooth in alcohol and come directly to the office.
 - Put the tooth in water and come directly to the office.
 - Wash the tooth, implant it yourself and come directly to the office.
 - Put the tooth in a tissue and come to the office at your leisure.
 - Bring the patient in tomorrow since the prognosis is poor anyway.
10. Once an avulsed tooth has been replanted and splinted, the recommended time for maintaining the splint would be:
- Four to six weeks
 - Seven to ten days
 - Three weeks
 - Two months
 - Three months
11. The most common error in making endodontic access in a lower anterior tooth is:
- Lingual perforation
 - Lateral perforation
 - Access too large
 - Access made through the incisal edge
 - Access made too far gingivally
12. Prior to initiating endodontic access in a lower molar tooth, it is imperative to:
- Outline the pits and fissures
 - Examine the bite-wing radiograph
 - Measure the root length
 - Remove all caries
 - Determine the long axis of the roots.
- 1, 4, 5
 - 2, 3, 4
 - 1, 2, 5
 - 2, 4, 5
 - All of the above
13. The main purpose of endodontic obturation is to:
- Provide a radiopaque material in a canal
 - Provide a bacteriocidal material within the canal
 - Seal all of the orifices of the root canal system
 - Force pulpal remnants not cleaned by files into the periodontal ligament space
 - Prepare the canal for a post
14. In order to compensate for canal irregularities when obturating, it is necessary to do which of the following?:
- Condense the filling material
 - Use an appropriate sealer
 - Overfill the root canal system
 - Pre-measure the gutta percha master cone
 - Leave sodium hypochlorite in the canal for bacteriocidal effect
- 1, 2, 3, 4
 - 1, 2, 4
 - 3, 4, 5
 - 2, 3, 4
 - 1, 2, 5
15. Trephination is indicated when:
- Pain is controlled by analgesics or by a combination of analgesics and antibiotics for an apical abscess.
 - One appointment endodontics is performed.
 - There is a soft tissue fluctuant mass associated with an apical abscess.
 - There is an uncontrolled painful accumulation of purulent or haemorrhagic exudate trapped within the cancellous bone.
 - Pus is encountered upon opening a root canal (non-surgically).
16. Endodontic surgery is based on the following concept:
- It is necessary to remove the portion of the root associated with the soft tissue lesion.
 - A radicular cyst does not have the potential to heal without surgical enucleation.
 - Large apical radiolucencies will usually require surgical removal following conventional therapy.
 - It is necessary to initiate surgery to treat a chronic draining sinus tract (fistula).
 - The main reason for endodontic surgery is to improve upon the existing apical seal.
17. Having made a diagnosis of acute alveolar abscess with associated cellulitis in an upper lateral incisor, initial therapy should consist of:
- Incision for drainage
 - Prescribe antibiotics till acute phase subsides
 - Establish draining via the root canal
 - Establish drainage via bony trephination
 - Prescribing hot fomentations to reduce swelling
18. Post-operative flare-ups following endodontic treatment are most likely to result from:
- Use of ultrasonic canal debridement
 - Overinstrumentation
 - Use of Gates-Glidden drills
 - Overmedication
 - Forcing debris through apex
- 2 and 4
 - 1, 2 & 3
 - 1, 3 & 4
 - 1 and 5
 - 2, 4 & 5
19. The proper technique in utilizing Gates-Glidden rotary instruments to flare the coronal and middle portions of the canal dictates their use:
- in increasing diameters from the narrowest through the widest possible with marked apical pressure.
 - in decreasing diameters from the widest through the narrowest possible with marked apical pressure.
 - in increasing diameters from the narrowest through the widest possible in a passive manner.
 - in decreasing diameters from the widest through the narrowest possible in a passive manner.
 - in only that size of bur which is the final size desired for the canal shape.
20. Pertaining to bleaching of vital teeth:
- a rubber dam should be placed carefully such that a tight fit is ensured following the administration of local anesthetic.
 - dental personnel should wear gloves since 3% H₂O₂ may cause skin burns.
 - a walking bleach using a sodium perborate — H₂O₂ mixture may be used between appointments in cases with deep staining.
 - a transient pulpitis may result causing sensitivity to thermal changes for a period of time.
 - intrinsic grey stains respond better than brown stains. Δ

I would like to thank Dr. William H. Christie of the University of Manitoba, Faculty of Dentistry, for reviewing this manuscript and sincere thanks to Mrs. Lisa Crusch, for typing the manuscript: — Dr. Marshall Peikoff.

Endodontics and the Elderly Patient — Management Considerations

Doug Galan, DMD, MSc
Faculty of Dentistry
University of Manitoba
Winnipeg, Manitoba

INTRODUCTION

Endodontic treatment can be carried out on any patient, regardless of age, provided the indications and contraindications for treatment are observed. The decision of whether or not to provide treatment should be based upon: the condition of the patient (whether they are a frail or well elderly individual); the dentist's skills; the materials and resources available; the treatment venue; and whether the treatment being provided is emergency or rehabilitation. One must also consider the changes that take place in the pulp as teeth get older.

The pulp undergoes a series of physiological and histological changes that significantly influence endodontic treatment.^{1,2} Decreases in pulp size and volume due to normal aging, to trauma or wear on the tooth, or to a combination of aging and multiple carious or restorative treatments produce pulpal recession by secondary and reparative dentin production. This change coupled with a fatty degeneration of the pulpal nerves to produce calcifications, pulp stones or nodules, and dentinal sclerosis from an increased amount of peritubular dentin being present, lead to decreases in pulpal sensitivity. Cellular changes including: the degeneration of odontoblasts and the decrease in the size and number of fibroblasts; fibrous changes from an increase in the cross-linkages and the number of mature collagen fibers; and vascular changes decreasing the number and quality of blood vessels, all reduce the healing capacity of the pulp and to some extent also decrease the pulpal response.

Despite these changes, there are definite advantages in providing endodontic therapy in the elderly. These include: the psychological and social aspects of avoid-

ing extraction; the definite apical constriction that makes canal obturation easier; and the improved prognosis because many of the lateral canals are sclerosed. There are also a few disadvantages, but these can usually be accommodated with good patient management techniques. For the most part, endodontic treatment is well tolerated by the elderly, but different management skills may be needed for the frail elderly patient compared to the well elderly patient. Management skills are important in endodontics for this population because older patients suffer from various medical conditions.

INTRODUCTION

Quel que soit son âge, tout patient peut recevoir un traitement d'endodontie pourvu que les indications et les contre-indications soient suivies. Pour décider si l'on doit, oui ou non, donner un traitement, on doit prendre en compte les points suivants: l'état de santé du patient (s'il s'agit d'une personne en forme ou de santé fragile); les compétences du dentiste; les matériaux et les ressources disponibles; le mode de traitement; s'il s'agit d'un traitement d'urgence ou de restauration. De plus, il convient de tenir compte des changements qui, avec l'âge, affectent la pulpe dentaire.

La pulpe dentaire subit divers changements physiologiques et histologiques qu'il importe grandement de prendre en considération dans les traitements d'endodontie^{1,2}. Sous l'effet de l'âge, de lésions, de l'usure ou d'une combinaison de l'âge, de multiples caries ou de soins de restauration, la pulpe diminue de volume, causant une résorption par production de dentine secondaire ou réparatrice. Associé à une dégénérescence graisseuse des nerfs pulpaux qui entraîne des

calcifications, des denticules ou pulpolithes et une sclérose dentinaire à cause d'une plus grande quantité de dentine périrubulaire, ce changement finit par rendre la pulpe moins sensible. Les changements cellulaires comprenant la dégénérescence des odontoblastes ainsi que la diminution de la taille et du nombre de fibroblastes; les changements fibreux dus à l'augmentation des liaisons croisées et du nombre des fibres collagènes mûres; et les changements vasculaires faisant baisser le nombre des vaisseaux sanguins et leur qualité, tout cela diminue le pouvoir de guérison de la pulpe et, jusqu'à un certain point, son pouvoir de réaction.

Malgré tous ces changements, il est certain qu'il y a des avantages à donner des soins d'endodontie aux personnes âgées. Parmi ces avantages, mentionnons les facteurs psychologiques et sociaux liés aux extractions dentaires, le rétrécissement apical certain qui facilite les obturations radiculaires et un pronostic amélioré à cause de la sclérose des canaux latéraux. Il y a également quelques inconvénients, mais avec de bonnes techniques de gestion, on réussit ordinairement à les parer. La plupart du temps, les personnes âgées tolèrent bien les traitements d'endodontie, mais suivant qu'elles sont en bonne santé ou de santé fragile, leur gestion sera différente. Il est important de savoir bien gérer ces personnes parce qu'elles souffrent de diverses maladies.

Medical Conditions Influencing Endodontic Treatment

The elderly dental patient may suffer from more than one chronic medical condition and may also be taking several medications. As a result, endodontic treatment is generally preferred to extraction because it is less traumatic, both physically and emotionally.³ Certain

medical conditions, however, may influence endodontic treatment and these risks must be determined prior to the initiation of therapy.

Those taking anticoagulant therapy should have the prothrombin index evaluated prior to anesthetic administration to avoid spatial bleeds. Systemic steroid takers and insulin-dependent diabetics will exhibit slower healing times and will require stress management techniques because their abilities to handle stress are diminished. Patients on systemic corticosteroids for some time may require either an increased steroid dose for a period of 24 hours during treatment or antibiotic coverage.³ For those patients with a history of rheumatic fever, congenital valvular disease, or prosthetic valves or joints, endodontic treatment is less likely to produce a bacteremia than an extraction, and therefore patients will be less compromised.^{4,5} Should there be any uncertainty at all about any potential risks of treatment due to a medical condition or to long term medication use, it is appropriate to consult with the patient's physician.

Certain patients may have difficulty in sitting for long appointments.⁶ Patients with Parkinson's disease because of head and body tremors; arthritic patients because of pain or postural difficulties; and patients with chronic respiratory diseases, where breathing is difficult and who fatigue rapidly, all fit into this category. Patients with chronic respiratory difficulties also find that lying supine is difficult, so endodontics on these individuals should be carried out with them in a more upright position. Treatment may take a longer time to complete in these individuals because they require several short appointments.

Other patients require stress management as a fundamental component of their dental care. Patient education is probably one of the best forms of stress management because it increases the patient's dental awareness, it allays fears and it answers questions. It also provides the dentist with an opportunity to express his or her concerns to the patient. Adequate pain control both pre-operative with complete anesthesia, and post-operative with appropriate analgesics where needed, also decrease stress levels. For some individuals, pre-medication with short-acting benzodiazepines (like lorazepam (Ativan[®])) may be needed for anxious patients. Long acting benzodiazepines (like diazepam (Valium[®])) have a longer half-life in the elderly and an extended period of sedation, beyond what is necessary for a den-

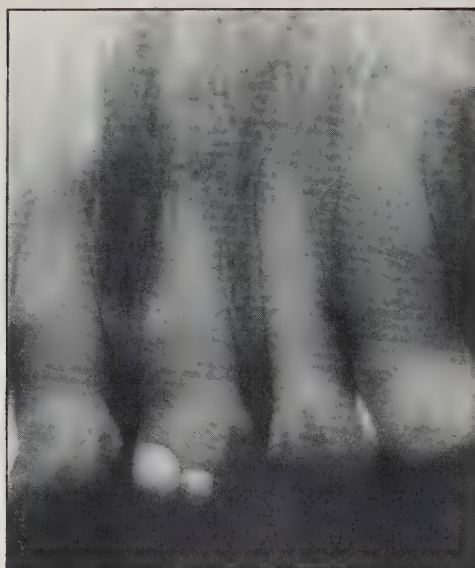


Figure 1 — This radiograph depicts how restorative treatments and extensive attrition have produced receded pulp chambers and constricted canals in these maxillary anterior teeth.

tal procedure, and therefore should be avoided. Finally, a controlled dental environment can significantly reduce stress. Appropriate appointment scheduling, not hurrying through the endodontic procedures, and considerations for transportation availability to the clinic and patient mobility once at the clinic, can all make the dental environment less stressful.

Diagnosis

Probably the greatest diagnostic challenge is determining pulp vitality. The difficulty stems from the fact that older teeth are less sensitive to both electrical and thermal testing. The insulating effect of a thicker sclerotic dentin, a decreased nerve supply and a more atrophic pulp tissue all contribute to a loss in sensitivity. These losses, however, should not be interpreted as pathological changes per se.

Electrical pulp testers may not be reliable for diagnosis because of the various aging changes to the pulp. If a pulp tester is being used, the results should be confirmed with thermal and percussion sensitivity tests because of the possibility of false positive findings.

For thermal testing of irreversible pulpal pain, it may be necessary to move the hot or cold source to the cervical area of the tooth, remembering to protect the gingiva with a cotton roll so no false positive results are produced. If the application of

heat does not elicit the pain response, try asking the patient to drink a warm liquid (like a cup of coffee or tea) to develop the pain, and then apply a cold source to the suspect tooth to determine if the pain can be reduced.² Electrical pulp testers may not be reliable for diagnosis because of the various aging changes to the pulp. If a pulp tester is being used, the results should be confirmed with thermal and percussion sensitivity tests because of the possibility of false positive findings.

Radiographs are the best method for determining pulp vitality and are therefore mandatory. Diagnostic radiographs should include both a bitewing to evaluate the pulp chamber and a periapical radiograph for apex assessment (**Fig. 1**). A careful analysis of the radiographs also permits the estimation of the space between the roof and floor of the pulp chamber of posterior teeth, and the direction of the long axis of the teeth, especially if they are tilted.⁷

Sometimes one must adopt a wait and see attitude for more definitive signs and symptoms like pain from thermal stimuli, percussion sensitivity, periapical changes and incomplete fractures to develop.⁷ In some cases, if the pulp appears nonvital but the tooth does not seem to have a periapical lesion nor pulpal symptoms, it might be better to keep the tooth under observation as opposed to beginning endodontic therapy. In such cases, always inform the patient about the findings and that no treatment will be provided unless necessary, assuring them that if any symptoms of pain begin they should return for immediate treatment. Also in some instances, symptomless nonvital pulps with minimal lesions, particularly in frail elderly patients, need not be treated unless there is evidence of active pathology.

Endodontic Management Techniques

Limited mouth opening

A limited mouth opening can be a particular problem especially when trying to operate upon posterior teeth in arthritic patients or patients with some TMJ dysfunction. By using bite blocks or a Molt device, some increased opening can be achieved, even for extended periods of time. Pedodontic handpieces, due to their smaller size, may increase the ease of making access openings into posterior teeth. Locating canals and managing calcified canals with a limited opening can be particularly difficult. This difficulty can, however, be reduced using a technique that utilizes a modified 21 mm file

mounted in a mosquito hemostat (Fig. 2).² By holding the hemostat in a pencil-like grip, the file can be carried to the tooth and more easily placed. This technique provides an increased tactile sense because the file tip is finer than an explorer (especially if a number 8 or 10 file is used). Also once the canal orifice is located, it can be gently opened, with the file being released into the canal and manipulated with finger motion.

Isolation

As with any endodontic treatment, rubber dam placement is mandatory. However in some cases the rubber dam placement may have to be modified somewhat. This is particularly true in patients with respiratory problems where their breathing is severely compromised. In these cases, a hole will have to be cut into the middle of the rubber dam to facilitate breathing. Although the complete isolation of the tooth may be diminished, it is a small sacrifice to pay for patient comfort.

Certain situations may necessitate the use of a split dam technique.⁶ The split dam technique is quite useful in cases involving: a retained root requiring endodontic therapy (prior to overdenture abutment fabrication), where the endodontic treatment involves going through bridgework, or in cases where there is an insufficient amount of crown remaining for clamp retention.

The split dam technique is quite useful in cases involving: a retained root requiring endodontic therapy (prior to overdenture abutment fabrication), where the endodontic treatment involves going through bridgework, or in cases where there is an insufficient amount of crown remaining for clamp retention.

If there is an insufficient amount of remaining tooth structure to allow clamp retention, the situation can be better managed by building up the tooth prior to clamp placement. The tooth can easily be temporized by the placement of an IRM filled copper band or by placing a stainless steel crown over the tooth. Some cases where the tooth margins are subperiosteal, a crown lengthening procedure is often required prior to beginning endodontic therapy.

Access opening

The outline shape of access openings in



Figure 2 — Modified 21 mm file mounted in a mosquito hemostat used for patients with limited mouth opening abilities. By holding the hemostat in a pencil-like grip, the file can be carried to the tooth and more easily placed into the canals.

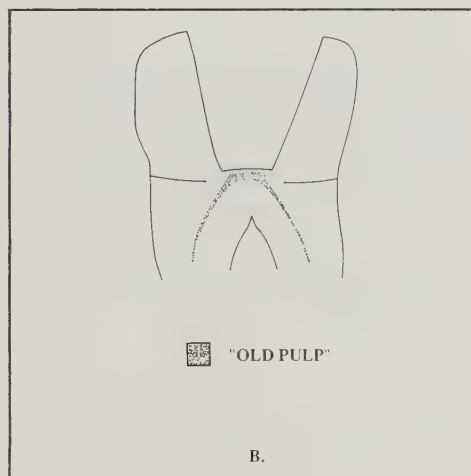
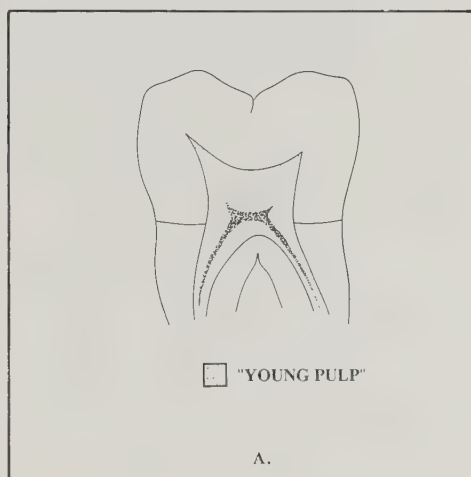


Figure 3 — A. Pulpal configuration differences seen in a "young pulp" compared to an "old pulp." B. Shape of the access opening needed for an "old pulp." The access opening needed to gain access to the canal orifices is more flared occlusally due to the pulp configuration and canal constriction.

older teeth are similar to those in younger teeth, but they are generally smaller in size in the apical portion due to the decreases in the size of the pulp chamber and the diameter of the canal orifices.³ Access openings will probably have to be more flared in the occlusal portion to accommodate file insertion (Fig. 3). The

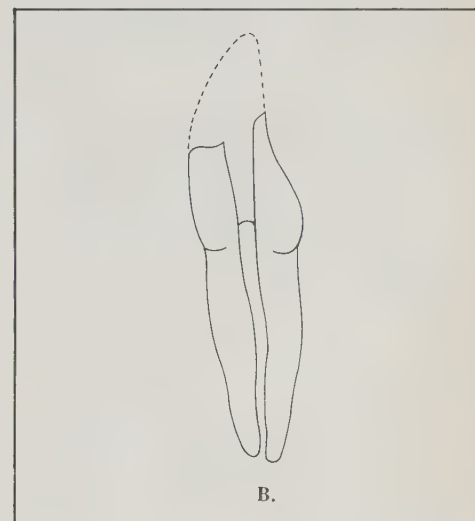
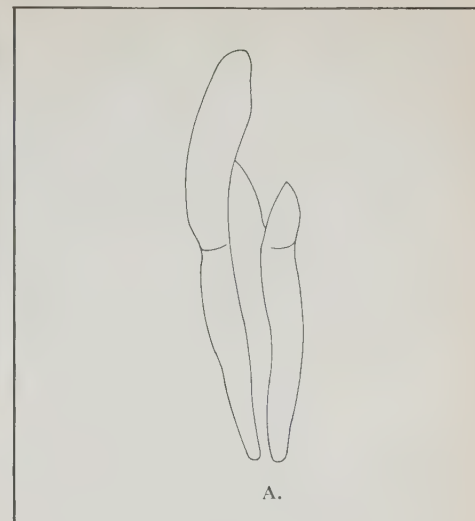


Figure 4 — A. Access opening in a mandibular incisor with a "young pulp." B. Access opening in a mandibular incisor with an "old pulp" and extensive attrition.

access openings can be further complicated in the elderly dentition by the presence of extensive restorations, crowns, tilting of teeth or canal calcifications. In some cases, the pulp chamber may be extremely small or even absent due to the formation of reparative dentin or pulp stones.

When making an access opening, the site of penetration into the tooth may be different depending upon the condition of the tooth being treated. It may be necessary to go through the incisal edge of anterior teeth, especially in cases where there has been extensive attrition (Fig. 4). For molars, a buccal or mesial approach to the canals may be needed depending upon the amount of recession and canal sclerosis that has taken place (Fig. 5). This technique for accessing the buccal canals of molars is not highly recommended except in very specific cases.

In some instances it may be helpful to begin the access preparation through a crown prior to rubber dam placement, in

order to establish the relationship of the crown to the roots, and the tooth to the remaining dental arch.⁶ Once the basic outline form is cut, the dam is placed onto the tooth followed by penetration into the roof of the pulp chamber. This technique is particularly useful in molar teeth where canal location is difficult and there is a risk of furcation penetration.

At all times good canal visibility is a must. Some useless portions of the crown may have to be removed to improve visibility. For example, it may be necessary to remove some of the mesio-buccal (MB) cusp of maxillary 1st molars to gain unimpeded access to the MB canal.⁷ Fiber optic handpieces are particularly useful during access preparation because they provide a direct light source onto the tooth.

Because of the various aging changes, canal entrances tend to be closer together with more splayed roots in the older dentition.

Finding canals

Because of the various aging changes, canal entrances tend to be closer together with more splayed roots in the older dentition (Fig. 3). This increases the difficulty with canal location, usually requiring operator patience in order to find the canals. Often it is helpful to look for the largest canal first, like the distal canal in mandibular molars or the palatal canal in maxillary molars. By finding these canals first, the correct canal level can be established making the smaller canal entrances easier to find. When placing files into the canals of older teeth, remember file insertion becomes less vertical in reference to the tooth's occlusal plane than it would in a younger tooth because of pulpal calcification (Fig. 6).

Should the coronal part of the canal orifices become sclerosed, the only way to locate the canal would be by using a long shank bur, with a radiographic-probing technique.² In this technique, a periapical radiograph is taken after the access opening is made, leaving the bur in the pulp chamber. By leaving the bur in place, one is able to establish a relationship between the opening depth and the pulp chamber or canal orifices. The opening depth is then extended apically, the canal reprobed and if the canal orifices are not found, a second radiograph is taken. This procedure is continued until the canals are found. Great care should be taken when using this technique because

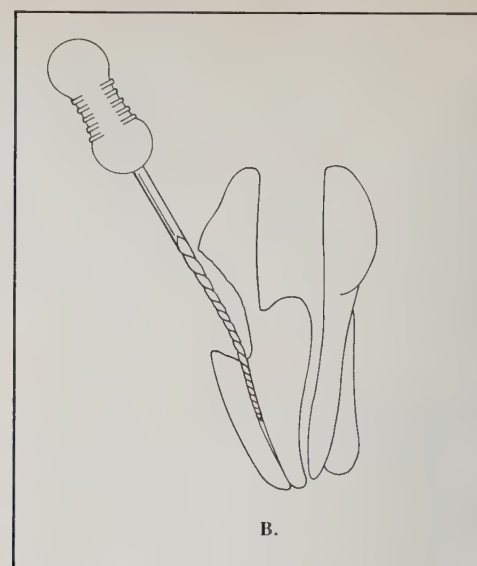
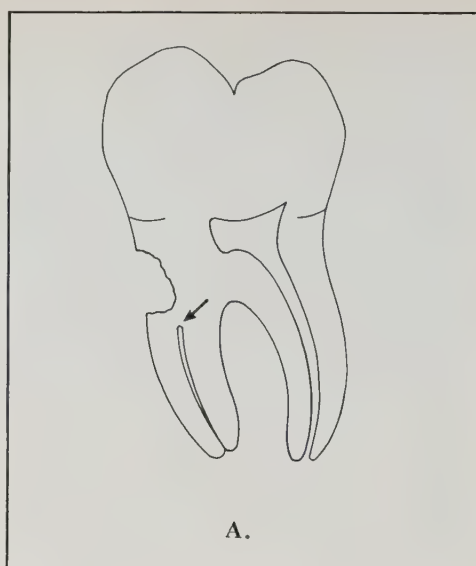


Figure 5 — A. Calcification (arrow) has taken place in one canal due to mesio-buccal decay. **B.** Gaining access to this canal is achieved by a buccal approach.

the chances of perforation are increased.

Another technique that is useful for finding obscured canals, particularly small orifices, involves the use of fiber optic light.³ When using this technique, the overhead dental operating light is switched off and a fiber optic light-tip is placed at the gingival margin of the tooth. The beam of light is transmitted through the tooth substance across the floor of the pulp chamber. This causes the canal orifices to appear as small brown spots, facilitating their location.

It has been reported that the apex can be located accurately, within 0.5 mm, anywhere from 80 to 100 per cent of the time depending upon the type of apex locator being used.

Apex location

With cementum deposition at the apex, the radiographic apical opening tends to be moved downward and maybe even to a different area. In fact, the anatomical apex may be 2 to 3 mm coronal to the radiographic apex. Because of this, there is a risk of canal over-preparation if the tooth is prepared to the radiographic apex. To manage this problem it may be necessary to use an electronic apex locator.

Apex locators are electronic devices that use a probe inserted into the canal to locate the root apex. It has been reported that the apex can be located accurately, within 0.5 mm, anywhere from 80 to 100 per cent of the time depending upon the type of apex locator being used.⁸ When using the locator, the

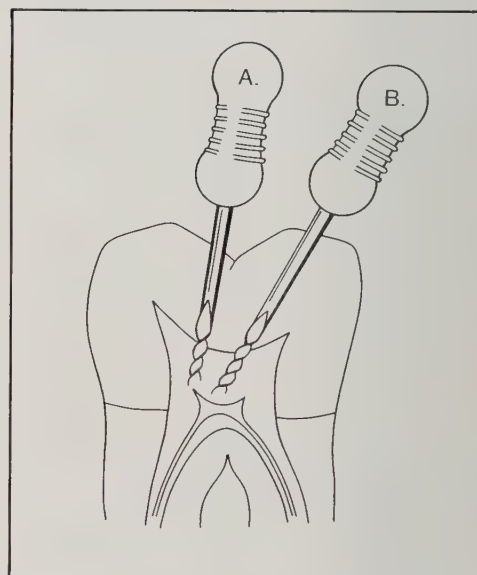


Figure 6 — Initial penetration into the canals. A. Instrument inclination for a "young pulp." B. Instrument inclination for an "old pulp."

canal may be damp, but not wet. Should the canal be wet due to the presence of blood or sodium hypochlorite, if there are large accessory canals or a root perforation is present, the readings may be short of the actual canal length. In any event, all findings must be confirmed with an undistorted periapical radiograph.

Use of irrigants

Irrigant use is essential for decreasing instrument breakage, especially in fine canals. It is also essential for flushing out debris. Traditionally, hydrogen peroxide had been used because it was effective in bubbling out debris, but it also caused dehydration of the canals. Sodium hypochlorite is therefore the preferred irrigant because it dissolves organic debris, has an antibacterial effect, and

it lubricates the canal. For very fine canals, glycerin² or Hibitane/Hibiscrub^a (chlorhexidine soap)³ are particularly effective in increasing the ease of negotiation and instrumentation due to their lubricating action. The chlorhexidine found in the soaps, when used, may also sterilize the canals because of its antibacterial effect.

Constricted canals

Chelating agents, like ethylene diamino-tetra-acetic acid (EDTA) or RC Prep^b (EDTA-urea peroxide combination), can assist in the negotiation of fine calcified canals. These agents soften the dentin walls of the canal, causing them to be widened, thereby permitting easier canal negotiation. Extreme care must be taken whenever using these chelating agents because there is a risk of perforating the roots, forming ledges or zipping the apex.

^a Ayerst Laboratories, Montreal.

^b Premier Dental Products, Philadelphia, USA.

Canal preparation

As with any endodontic treatment, all preparation must be conducted in such a way to avoid perforation of the apical constriction and accumulation of dentin debris in the apical region. No where is this more important than when working in fine canals. Correct assessment of the working length, proper instrumentation and frequent irrigation during canal preparation are essential to avoid problems.

For some situations, a single endodontic visit may be indicated. This technique has been shown to be as successful as multi-visit treatments.^{9,10} It has been shown that there is no increase in the after-pain following obturation of the canals immediately after the preparation has been completed.^{11,12} Provided complete mechanical cleaning has been carried out without extrusion of the material through the apical constriction, few symptoms of post-operative discomfort are seen.

Properly treated teeth should have fewer failures because lateral canals are sclerosed and the apex is more constricted.

Prognosis of Endodontic Treatment

Endodontics in elderly patients can produce very good results and have a success rate identical to that of younger patients.^{13,14} Properly treated teeth should have fewer failures because lateral

canals are sclerosed and the apex is more constricted. Endodontic treatment can be less traumatic and produce less systemic microbial problems than extractions. It also leaves the dentition more fully intact. The healing process, however, is slower than in the younger adult, and large peri-apical radiolucencies may require more time to resolve.

With an elderly patient, when determining the need for endodontic treatment, one must consider the cost-benefit ratio. The preservation of the dentition for function and esthetics must be weighed against the physical condition of the patient, the amount of time required to complete the treatment, the amount of stress that will be generated, the life expectancy of the patient and the life expectancy of the teeth. If the teeth have an overall poor prognosis, the cost of providing endodontic therapy may be too high to be of benefit to the patient. Δ

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Did You Know?

(As reported from "Canada Diseases" Weekly Report November 21, 1987

Table 1. Hepatitis B Virus (HBV) Infection and HBV Vaccine Use, Canada, 1982-1986

Location	HBV Infection Per 100 000 (Rank)		Vaccination Per 100 000 (Rank)	
Northwest Territories and Yukon	19.1	(1)	5620	(1)
Saskatchewan	16.8	(2)	514	(6)
Ontario	12.2	(3)	917	(3)
Alberta	8.7	(4)	1029	(2)
Manitoba	7.0	(5)	766	(4)
Quebec	4.1	(6)	740	(5)
Prince Edward Island	4.0	(7)	76	(11)
Nova Scotia	3.1	(8)	345	(10)
British Columbia	2.5	(9)	348	(9)
Newfoundland	0.2	(10)	367	(8)
New Brunswick	0.1	(11)	467	(7)
Canada	7.7		755	

BOARD OF GOVERNORS NOTICE OF MEETING

The Interim Meeting of the Board of Governors of the Canadian Dental Association will be held August 24-25, 1990 (Friday and Saturday respectively) at the Chateau Laurier Hotel, Ottawa, commencing at 9:00 a.m. on August 24.

It is brought to your attention that meetings of the Board of Governors are open to all members of the Association.

The Board is composed of twenty-eight governors with voting privileges and a Chairman. Governors represent members across Canada on a 1 to 500 ratio. The Canadian Forces Dental Services, Student members and affiliate members from Québec are represented by one member each.

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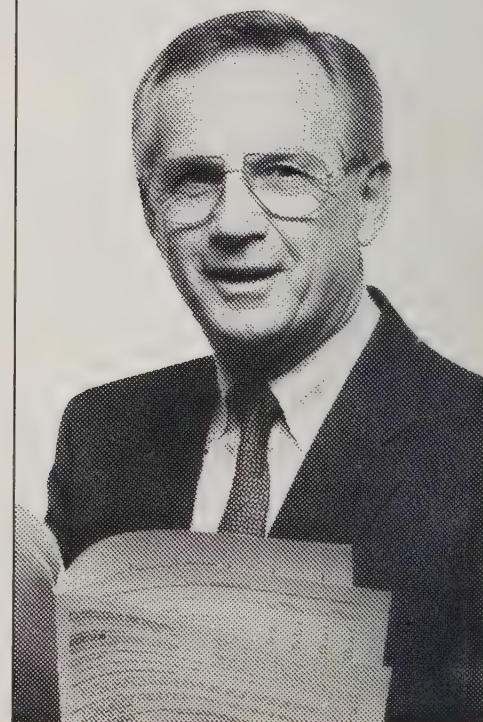
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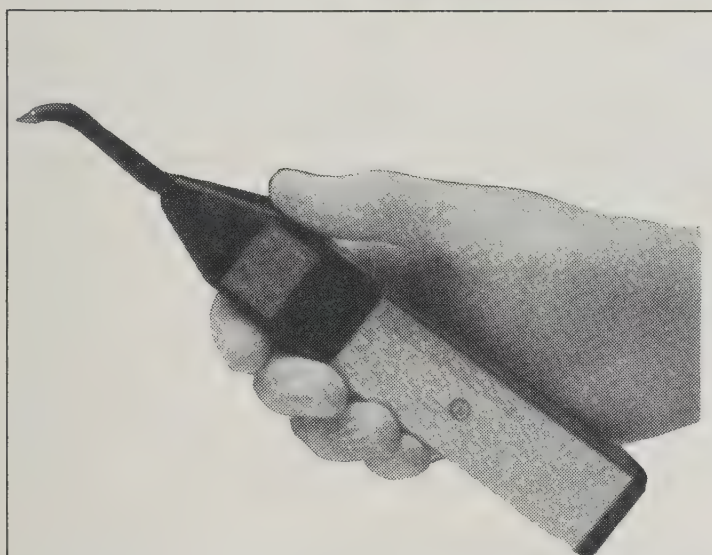
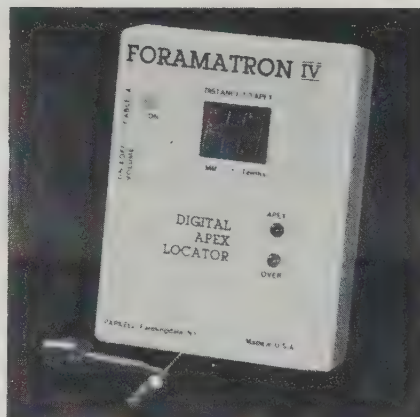


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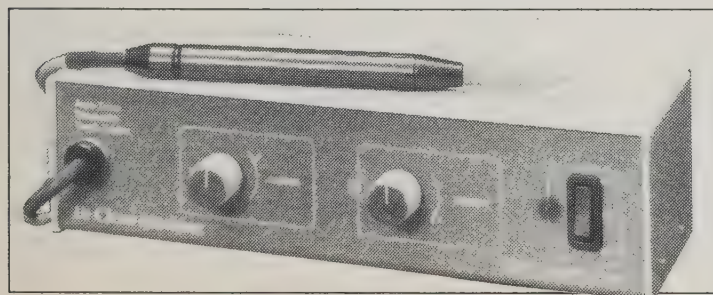
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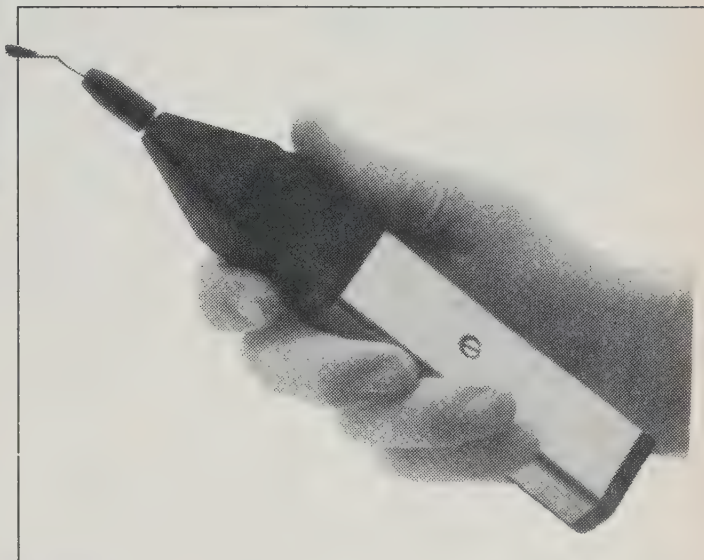
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Étude sur les causes d'échecs post-endodontiques: Une analyse descriptive d'une population de 198 cas de retraitements chirurgicaux

Auteur:

Marc-André Morand, MA, MSc
Professeur agrégé et Chef de Section en Endodontie
Université Laval
Québec, QC

Adresse:

École de médecine dentaire
Section d'Endodontie
Université Laval
Québec, QC G1K 7P4

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RÉSUMÉ

Cet article rapporte une analyse statistique descriptive de 198 cas d'échecs post-endodontiques décelés en pratiques privées, pour lesquels une chirurgie apicale fut demandée. Les biopsies associées à ces dents montrent que 68,18 pour cent des lésions sont constituées de granulomes apicaux, 3,5 pour cent sont des kystes, 16,16 pour cent sont des granulomes épithélialisés et 12,12 pour cent sont des cas "autres". Les groupes de causes les plus fréquemment associés à ces échecs sont des erreurs techniques (55,05 pour cent des cas) et des erreurs procédurales (17,68 pour cent).

SUMMARY

In this article, a statistical analysis describes 198 cases of post-endodontic failures referred from private practitioners for surgical retreatments. Biopsies of these lesions showed that 68.18 per cent of them were identified as apical granulomas, 3.5 per cent as cysts, 16.16 per cent as epitheliated granulomas and 12.12 per cent as "other" cases. The two main groups of causes associated with these failures are: technical errors (55.05 per cent of the cases) and procedural mistakes (17.68 per cent).

La plupart des chercheurs en endodontie, comme le rapporte Grossman¹, s'entendent pour affirmer que le taux de succès prévisible, susceptible d'être atteint, à la suite de traitements de canaux conventionnels, se situe autour de 90 pour cent. Ingle² dans son étude à l'University of Washington rapporte un

taux de succès de près de 95 pour cent. Schilder, dans son enseignement à la Boston University, proclame que le taux de succès prévisible en endodontie est de 100 pour cent en autant que l'on puisse désinfecter totalement le système canalaire par une mise en forme adéquate et sceller les issues périradiculaires de ce système par une obturation étanche et stable.

Il arrive trop souvent, néanmoins, de découvrir chez de nombreux patients des dents inconfortables, des fistules chroniques, des radiotranslucidités apicales croissantes, sur des dents ayant déjà reçu des traitements endodontiques. Ces dents ont souvent des pivots, des couronnes ou des ponts qui les recouvrent et ne peuvent être récupérées que par l'approche chirurgicale.

La littérature scientifique associe plusieurs causes aux échecs post-endodontiques^{2,3,4,5,6,7}. Doit-on en faire porter le tort sur la nature kystique des lésions? Doit-on blâmer la décision initiale du praticien qui a accepté de traiter un cas compromis parodontalement ou un cas techniquement trop difficile à traiter? Doit-on dénoncer le manque d'auto-discipline de certains dentistes qui négligent de se plier à toutes les exigences de la pratique endodontique? Doit-on accuser le mauvais état de santé du patient?

Dans cette optique, il nous a semblé opportun de vérifier en quoi consistaient les causes apparentes d'échecs de quelque 198 cas de traitements conventionnels fautifs confiés à notre attention par des dentistes généralistes, pour retraitement chirurgical. Ces patients proviennent de cabinets privés multiples où les traitements infructueux furent identifiés. Le but de la présente étude est de présenter une analyse statistique descriptive des

dents retraitées, en établissant le diagnostic histologique des lésions qui y sont associées, puis en dressant un bilan des causes apparentes d'échecs qu'elles représentent.

Procédures et méthodes

Les dents faisant l'objet de cette étude représentent la totalité de divers cas traités chirurgicalement par l'auteur, sur une période de temps limitée et récente. Tous les cas possédant un rapport de biopsie furent retenus.

- Par l'effet du hasard, les patients des deux sexes sont représentés en nombre égal. Ils sont âgés de 12 à 75 ans; ils ont été classés en sept catégories:
1 – Les moins de 19 ans; 2 – Les 20 à 29 ans; 3 – Les 30 à 39 ans, etc.
- Chaque dent est identifiée selon le système international, pour chaque quadrant et chaque maxillaire: Le quadrant 1: dents 11 à 18; Le quadrant 2: dents 21 à 28, etc.
- Les facteurs étiologiques ont été classés en cinq catégories spécifiques:
1 – Les facteurs "divers", non classifiés comme tels (échec inexplicable; traitement endodontique combiné à la chirurgie, en une seule séance, etc.)
2 – Les lésions mixtes parodontales et endodontiques
3 – Les erreurs techniques (mise en forme insuffisante; sous-extension; sur-extension; cône d'argent mal ajusté; canal non traité; pivot et ciment sans gutta percha)
4 – Les fautes procédurales (perforation latérale fautive en fabriquant un pivot; faux canal; bris d'instrument; perforation mécanique lors de l'accès ou de la mise en forme; corps étranger)

5 – Les reprises de chirurgie (amalgame inadéquat; absence d'amalgame)

- Chaque spécimen cureté, fut placé aussitôt dans une solution de 10 pour cent de formaline. Le diagnostic histologique de ces spécimens a été fait en milieu hospitalier par un pathologiste. Les rapports de biopsies ont été classés en quatre groupes: 1 – Les granulomes apicaux (ou latéro-radicaux); 2 – Les granulomes épithélialisés; 3 – Les kystes apicaux; 4 – Les "autres" (tissu cicatriciel, kyste résiduel, etc.).

Discussion

Les tableaux 1 et 2 nous présentent la distribution de l'ensemble de la population étudiée (198 dents). On y observe que 99 hommes et 99 femmes figurent dans cette étude. Ceci est un pur effet du hasard. Le groupe d'âge le plus important vient des 30-39 ans (58 dents), suivi des 20-29 ans (50 cas) et des 40-49 ans (34 dents). Dans cette étude les 20-49 ans apportent donc 142 dents, ou 72 pour cent des cas. Il y a 15 individus de moins de 20 ans (7 pour cent) et 41 spécimens (21 pour cent) chez les 50 ans et plus. Ces pourcentages ressemblent beaucoup à ceux de l'étude de Stockdale et Chandler⁷.

Nous observons (tableau 1) qu'il y a une nette prédominance du groupe Centrales et Latérales, tant au maxillaire supérieur (99 dents sur 155, soit 63,87 pour cent de l'arcade) qu'au maxillaire inférieur (28 dents sur 43, ou 65,11 pour cent). Les dents du maxillaire supérieur sont 3.6 fois plus nombreuses que celles du maxillaire inférieur (155 dents sur 43). Cet écart est comparable à ce qu'on trouve dans d'autres études similaires²⁻⁸. Il est probable que, pour des raisons esthétiques, les patients cherchent à conserver prioritairement ce groupe de dents. Au maxillaire supérieur, les Centrales et Latérales sont plus exposées aux irritations pulpaires découlant de réfections répétées résultant de caries, de coups et blessures. . . Cela expliquerait le recours plus fréquent à l'endodontie pour ce groupe de dents, tel que présumé par Ingle².

Au maxillaire inférieur, l'anatomie coronale de ces mêmes antérieures est plus étroite, ce qui augmente la vulnérabilité de la pulpe aux attaques de la carie et des interventions iatrogènes.

Inversement, les dents postérieures supérieures et inférieures sont moins exposées aux coups. L'épaisseur de la couche émail-dentine protège mieux leur pulpe. Les besoins esthétiques moins grands pour le maintien de ces dents et les coûts relativement plus élevés asso-

TABLEAU 1

Dents impliquées dans l'étude

Maxillaire supérieur					Maxillaire inférieur				
	Hommes		Femmes			Hommes		Femmes	
	n	%	n	%		n	%	n	%
Droit					Droit				
11	10	(14)	14	(17)	41	4	(16)	6	(33)
12	11	(15)	11	(14)	42	3	(12)	2	(11)
13	2	(03)	5	(06)	43	1	(04)	1	(06)
14	5	(07)	4	(05)	44	1	(04)	—	
15	2	(03)	3	(04)	45	3	(12)	—	
16	1	(01)	7	(09)	46	—		1	(06)
17	—		—		47				
Gauche					Gauche				
21	14	(19)	8	(10)	31	6	(24)	3	(17)
22	15	(20)	16	(20)	32	3	(12)	1	(06)
23	4	(05)	1	(01)	33	1	(04)	—	
24	4	(05)	7	(09)	34	1	(04)	1	(06)
25	5	(07)	3	(04)	35	—		—	
26	1	(01)	1	(01)	36	2	(08)	3	(17)
27			1	(01)	37	—		—	
Total	74	(100)	81	(101*)		25	(100)	18	(102)
	155 dents					43 dents			

* Les % ont été arrondis pour simplifier la lecture

* Les % ont été arrondis pour simplifier la lecture

Tableau 1: Dents impliquées dans l'étude

Dans cette étude, toute proportion gardée, on voit que la majorité des retraitements se situent au niveau des antérieures, tant supérieures qu'inférieures. Il n'y a pas de différence statistique significative entre les centrales et les latérales supérieures.

TABLEAU 2

Distribution par groupe d'âge et par sexe

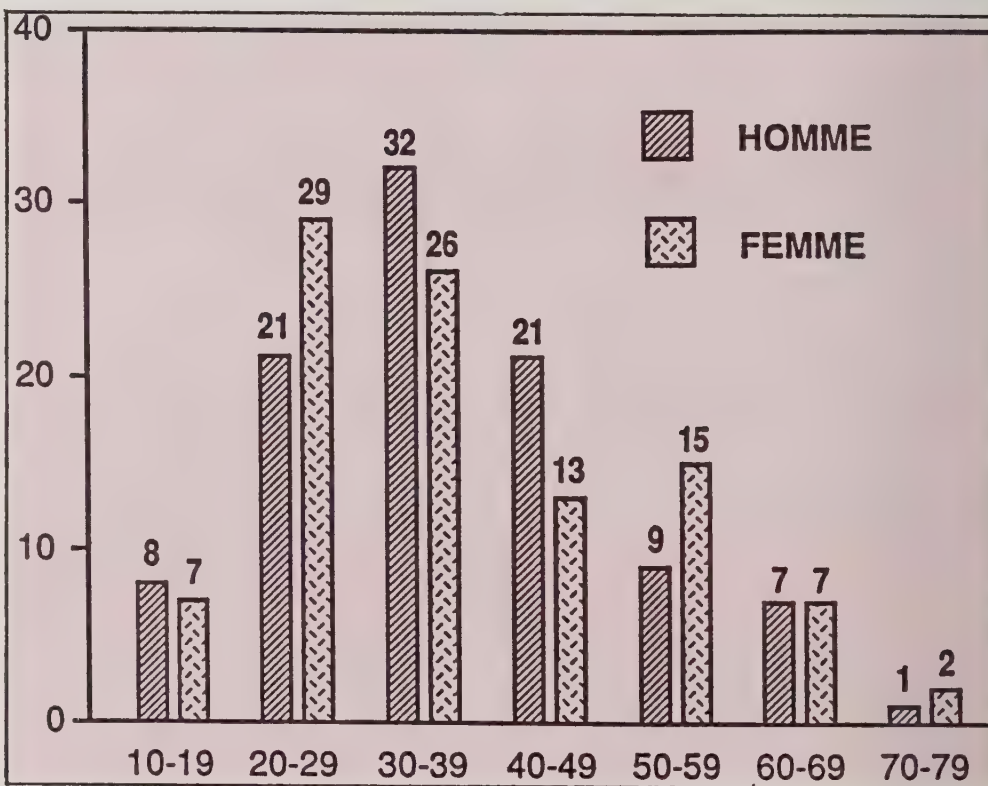


Tableau 2: Distribution par groupe d'âge × sexes

Le groupe d'âge le plus retraité est celui des 30-39 ans; toutefois, dans l'ensemble, les 20-49 ans forment 71,7 pour cent des cas analysés.

ciés à leur préservation font que certains trouvent le traitement endodontique de ces dents moins impératif; surtout chez les plus âgés moins portés autrefois à conserver ces dents⁹. Pour plusieurs, les difficultés techniques que représentent les traitements conventionnels et chirurgicaux des 2^e et 3^e molaires incitent à l'extraction. Par contre, plusieurs dentistes moins aptes à traiter les dents postérieures en arrivent à préférer confier cette tâche à des confrères mieux préparés. Toutes ces raisons peuvent expliquer, en partie, un besoin moins fréquent de chirurgies post-endodontiques sur ces groupes de dents.

Les rapports de biopsies des lésions curetées permettent de distinguer 135 granulomes (68,18 pour cent des cas), 32 granulomes épithélialisés (16,16 pour cent), sept kystes proprement dits (3,54 pour cent); les "autres" lésions constituent 12,12 pour cent des cas restant ou 24 dents. Mis ensemble, les granulomes épithélialisés et les kystes forment 20 pour cent de tous les cas. Le petit nombre de kystes proprement dits vient sans doute du fait que la présente étude ne s'intéresse qu'aux cas référés d'échecs.

On peut penser que plusieurs kystes ont guéri ou n'ont pas été portés à notre attention, ou que les dents impliquées furent extraites. Ceci expliquerait que leur pourcentage soit de moitié inférieur, ici à celui des études antérieures de Morse¹⁰, Winstock¹¹ et Stockdale⁷ et considérablement moins grand que les proportions trouvées par Baskar¹², Lalonde⁸ et Mortensen¹³.

La répartition de ces lésions (tableaux 3a et 3b) ne révèle aucune différence par rapport au groupe sexuel des patients, ni par rapport à la position des dents sur les quadrants droits et gauches, ou encore par rapport aux maxillaires supérieur et inférieur.

L'analyse de l'histoire médicale inscrite aux dossiers n'a rien apporté de particulier pour expliquer les échecs étudiés. Bien que la majorité des cas fut accessible au traitement conventionnel, l'anatomie particulière de certaines racines (courbes, délacération, canal en ruban, etc.) a pu contribuer indirectement à l'apparition d'échecs, en rendant plus difficiles les diverses étapes de la mise en forme (voir les illustrations 1, 2, 5, 6). Le diamètre des lésions, variable de 1 à 16 mm, n'a pas indiqué de seuil au-delà duquel les échecs auraient pu être démarqués plus particulièrement.

L'origine parodontale-endodontique des lésions n'explique que 4,04 pour cent de cas associés à des erreurs de choix.

TABLEAU 3A

Diagnostics × Sexes × Maxillaires

Diagnostics	Granulomes		Granulomes épithélial.		Kystes		Autres		Total
	H	F	H	F	H	F	H	F	
Maxillaires									
Quadrants 1 et 2	50	57	12	13	3	1	9	10	
Sous-total	107 (69,03%)		25 (16,13%)		4 (2,58%)		19 (12,26%)		155 (100%)
Quadrants 3 et 4	14	14	4	3	3	—	4	1	
Sous-total	28 (65,12%)		7 (16,28%)		3 (6,98%)		5 (11,62%)		43 (100%)
Totaux des 2 maxillaires	64	71	16	16	6	1	13	11	
	135 (68,18%)		32 (16,16%)		7 (3,54%)		24 (12,12%)		198 (100%)

Tableau 3a: Diagnostics × Sexes × Maxillaires

La distribution des lésions diagnostiquées ne montre pas de différences statistiques significatives entre les hommes et les femmes, ou entre un maxillaire et l'autre. En nombre, nous avons 3,5 fois plus de dents du maxillaire supérieur 155/43.

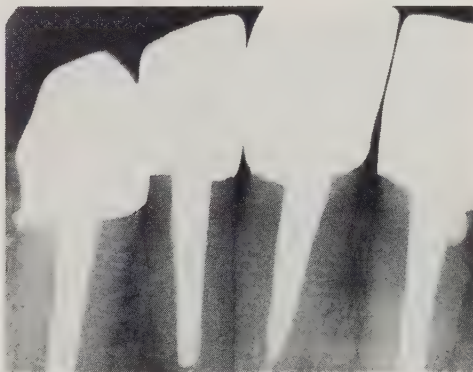
TABLEAU 3B

Diagnostics × Sexes × Quadrants ipsilatéraux

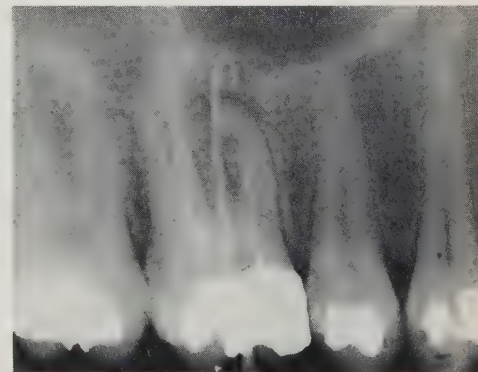
Diagnostics	Granulomes		Granulomes épithélial.		Kystes		Autres		Total
	H	F	H	F	H	F	H	F	
Côtés									
Côté droit (Quadrants 1 et 4)	26	41	8	8	3	—	6	5	
Sous-total	67 (69,07%)		16 (16,49%)		3 (3,09%)		11 (11,34%)		97 (100%)
Côté gauche (Quadrants 2 et 3)	38	30	8	8	3	1	7	6	
Sous-total	68 (67,33%)		16 (15,84%)		4 (3,96%)		13 (12,87%)		101 (100%)
Totaux des 2 côtés	64	71	16	16	6	1	13	11	
	135 (68,18%)		32 (16,16%)		7 (3,54%)		24 (12,12%)		198 (100%)

Tableau 3b: Diagnostics × Sexes × Quadrants ipsilatéraux

Il n'y a pas de différence statistique significative entre les quadrants du côté droit et ceux du côté gauche, quel que soit le sexe en cause.

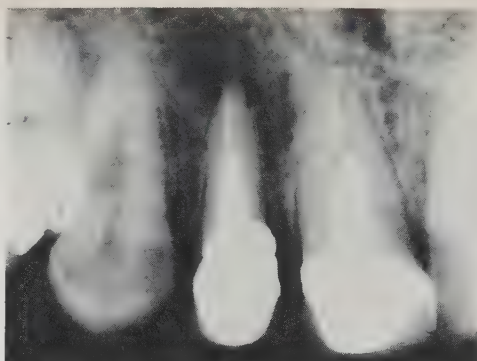


1. Un faux canal: Les fortes courbures apicales des latérales supérieures, de même que celles du canal mésio-vestibulaire des molaires supérieures ou des canaux mésio-vestibulaire et mésio-lingual des molaires inférieures prédisposent à la formation de faux canaux. La portion non traitée devient alors un foyer d'irritation.

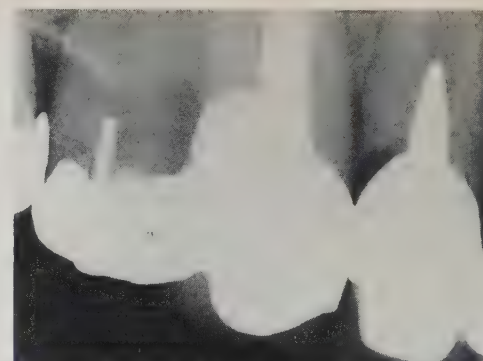


2. Le bris d'instrument: (un cône de G.P. suit la fistule) Les canaux fins et courbés occasionnent les bris d'instrument. Dans ces courbures il ne faut surtout pas tourner l'instrument comme une visse et on doit éviter l'emploi de limes usées.

En somme, l'explication fondamentale des échecs post-endodontiques dont il est fait mention, ne peut donc être trouvée statistiquement parlant, ni dans le vieillissement de la population (tableau 4), ni dans le sexe d'un groupe par rapport à l'autre, ni dans par la position des dents sur l'arcade, ni dans la nature kystique des lésions, ni même dans l'histoire médicale. D'autres causes doivent être envisagées. Prenant en exemple l'étude faite à l'University of Washington², nous avons dressé une liste d'erreurs techniques et une autre pour les erreurs procédurales; les reprises de chirurgie ont été classées à part, ainsi que les lésions parodontales; une classe "divers" a regroupé les facteurs difficilement classifiables. Analysés



5. Obturation poreuse; apex ouvert et sous-obturé: Pour prévenir toute recontamination du système canalaire, il faut maintenir une obturation dense et stable de l'espace désinfecté: les pâtes ne conviennent pas; les apex ouverts invitent à la sur-obturation; les sous-extensions conduisent à l'échec.



6. Canal non traité: Aussi fins que soient les canaux, c'est tout le système canalaire qui doit être désinfecté et obturé afin de prévenir, à l'apex, la percolation d'irritants.

TABLEAU 4

Diagnostic × Groupe d'âge

Diagnostics	Groupes							Total
	< 19	20-29	30-39	40-49	50-59	60-69	70-79	
Granulomes	12 8,89%	32 23,70%	40 29,63%	24 17,78%	16 11,85%	8 5,93%	3 2,22%	135 100,00%
Granulomes épithélial.		10 31,25%	10 31,25%	6 18,75%	5 15,63%	1 3,13%	32	100,00%
Kystes	1 14,29%	2 28,57%	2 28,57%	1 14,29%		1 14,29%		7 100,00%
Autres	2 8,33%	6 25,55%	6 25,00%	3 12,50%	3 12,50%	3 12,50%	1 4,17%	24 100,00%
TOTAL	15 7,58%	50 25,25%	58 29,29%	34 17,17%	24 12,12%	13 6,57%	4 2,02%	198 100,00%

Tableau 4: Diagnostics × Groupe d'âge

Les patients de 20 à 49 ans forment 71,7 pour cent de la population étudiée; les moins de 20 ans forment 7,58 pour cent des cas; ceux de 50 ans et plus forment 20,7 pour cent des cas. Il n'y a pas de relation directe entre l'âge et les lésions trouvées; les lésions sont simplement proportionnelles au nombre de traitements de canaux administrés.

TABLEAU 5

Diagnostic × Groupe de causes

Diagnostics	Causes					Total
	Divers	Endo.-paro.	Technique	Procédure	Reprises	
Granulomes	20 14,81%	4 2,96%	79 58,52%	34 17,78%	8 5,93%	135 100,00%
Granulomes épithélial.	5 15,63%		19 59,38%	4 12,50%	4 12,50%	32 100,00%
Kystes	3 42,85%	1 14,29%	2 28,57%		1 14,29%	7 100,00%
Autres	3 12,50%	3 12,50%	9 37,50%	7 29,17%	2 8,33%	24 100,00%
TOTAL	31 15,66%	8 4,04%	109 55,05%	35 17,68%	15 7,58%	198 110,00%

Tableau 5: Diagnostics × Groupe de causes

Les erreurs techniques (percolations. . .) forment 55,05 pour cent des causes d'échec, suivi des erreurs de procédures 17,68 pour cent. Les reprises de chirurgies comptent 7,58 pour cent des cas, les lésions endo.-paro. 4,04 pour cent; les 15,66 pour cent restant concernent "divers" facteurs.

en fonction des lésions diagnostiquées lors des biopsies, ces groupes de causes (**tableau 5**) montrent la nette prédominance des fautes techniques (55,05 pour cent). Viennent ensuite les erreurs procédurales (17,68 pour cent) et enfin les reprises de chirurgies: 15 cas ou 7,58 pour cent, c'est-à-dire 12 chirurgies sans amalgames (soit 6 pour cent) et trois cas dont l'amalgame ne scellait pas l'apex (soit 1,5 pour cent). Les complications endo.-paro., qui sont en fait des erreurs de sélection, concernent 4,04 pour cent des lésions; les facteurs "divers" s'appliquent à 15,66 pour cent d'échecs. Voyons plus en détail les principaux groupes.

Les erreurs techniques:

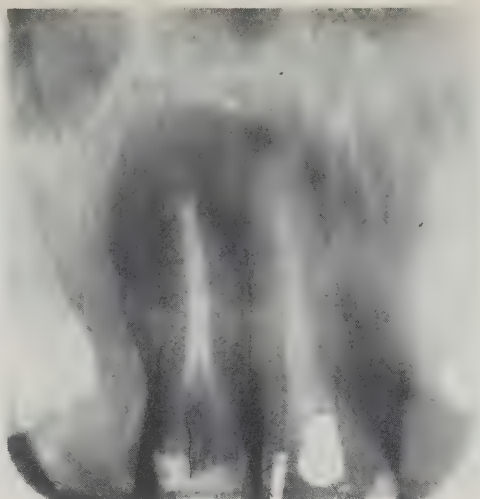
Les percolations apicales (obturation poreuse, manque de scellement apical. . .)	33,84%
Les mises en forme trop fines ou trop courtes	10,10%
Les cônes d'argent mal ajustés	0,51%
Un 2 ^e canal non traité	4,55%
La sur-extension du matériel d'obturation	3,03%
Pivot, couronne + canal vide	3,03%
Total	55,06%

Les erreurs procédurales:

Le faux canal	2,02%
Le bris d'instrument	1,52%
Les corps étrangers	0,51%
Les perforations latérales	7,08%
Les fractures verticales (limage exagérée du canal, traumatismes: pivot, fouloir. . .)	6,57%
Total	17,07%

Ainsi, les principales causes d'échecs semblent bien être iatrogènes, de nature. Ceci rejoint les conclusions de Ingle² et Daw² sur le même sujet.

Les facteurs "divers", quant à eux, sont rattachés à 15,66 pour cent des échecs (31 cas), ce qui est assez élevé. Cela s'explique par le fait que le classement des lésions en fonction des causes s'est fait aux niveaux macroscopique et radiographique. On sait que ces moyens limités ne permettent pas de tout voir¹³ ni d'extrapoler sur ce qui se passe aux niveaux microscopique. Parmi ces 31 dents, pour lesquelles des causes spécifiques n'ont pas été identifiées (**Tableau 5**), il y a 20 granulomes (64,52 pour cent des cas), cinq granulomes épithélialisés (16,13 pour cent), 3 kystes (9,67 pour cent) et trois cas "autres" (9,67 pour cent). En termes cliniques, cette classe regroupe 14 dents dont les lésions périapicales ne semblaient pas s'améliorer;



3. Un apex bouché: Nous partageons l'avis de Schilder et Baskar qu'il vaut mieux garder l'apex ouvert pour obtenir une meilleure guérison des lésions périapicales. Ici, l'apex est bouché.

un sous-groupe de sept dents d'infections récurrentes où la chirurgie dut être faite en même temps que le traitement d'endodontie; un autre sous-groupe de neuf dents inconfortables, bien que sans lésion apparente; enfin, un cas de kyste résiduel.

Par ailleurs, les 24 lésions classées comme "autres", c'est-à-dire autres que granulomes, granulomes épithélialisés et kystes, ces 24 dents comptent pour 12,12 pour cent de tous les cas analysés. Or, si on ignore les trois cas de lésions paro.-endo. et 1 cas de kyste résiduel, il reste un maximum de 20 cas, soit 10,10 pour cent, qui se sont avérés être des cicatrices apicales et des fractures.

Conclusion

Ainsi, dans cette étude, 68,18 pour cent des échecs rapportés sont constituées de granulomes apicaux, 3,5 pour cent sont des kystes, 16,16 pour cent sont des granulomes épithélialisés et 12,12 pour cent sont des cas "autres". La majorité des lésions analysées ne proviennent pas d'erreurs de sélection (i.e.: 8 cas de parodontie, 1 cas de kyste résiduel et une balance potentielle de 20 cas dans la catégorie "autres"), ni de la présence de kystes (seulement 7 cas). Ces lésions résultent principalement de granulomes ordinaires et épithélialisés (163 cas dont 12 provenant de reprises de chirurgies et 25 de facteurs "divers"); ces lésions résultent aussi de facteurs humains (126 cas provenant de fautes techniques et procédurales à l'intérieur de ces 163 lésions granulomateuses, soit 77,30 pour cent). Ce rapport pourrait approcher 100 pour cent, si on enlevait les retraitements chirurgicaux, puisque les lésions associées à ces cas ne repré-



4. Une perforation latérale: La fabrication d'un pivot peut facilement conduire à une perforation latéro-radulaire, si l'opérateur ne tient pas compte de l'inclinaison axiale de la racine.

sentent pas des échecs de traitements endodontiques de première instance. De même pourrait-il en être de certains des 25 échecs du groupe "divers" (endo.-chirurgie en une séance, par exemple). Par rapport à l'ensemble de tous les cas, cependant, les fautes techniques expliquent 55,05 pour cent des échecs; les erreurs de procédures en expliquent 17,68 pour cent. Ces données corroborent les résultats d'études antérieures^{2,6,14} sur les échecs post-endodontiques. Ces chiffres reconfirment l'importance des facteurs techniques et procéduraux, quant au succès attendu en endodontie. Δ

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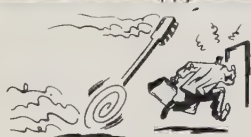
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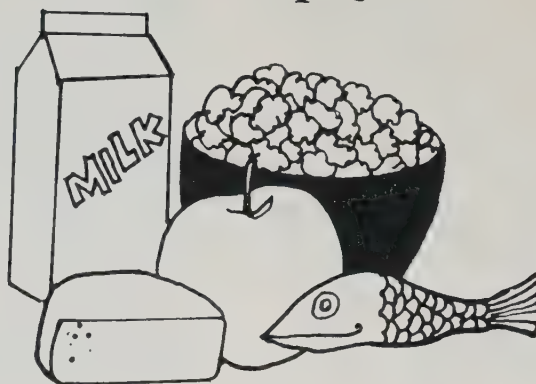


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- Two vegetable oils high in saturated fat are:
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- Eating oily fish tends to:
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- What effect does microwaving have on vitamins?
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 - it is less destructive than regular cooking methods
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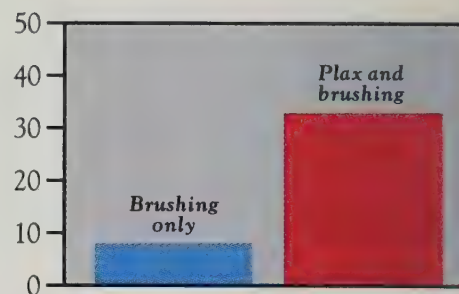
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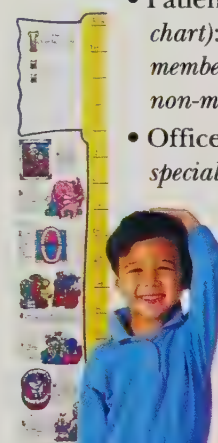
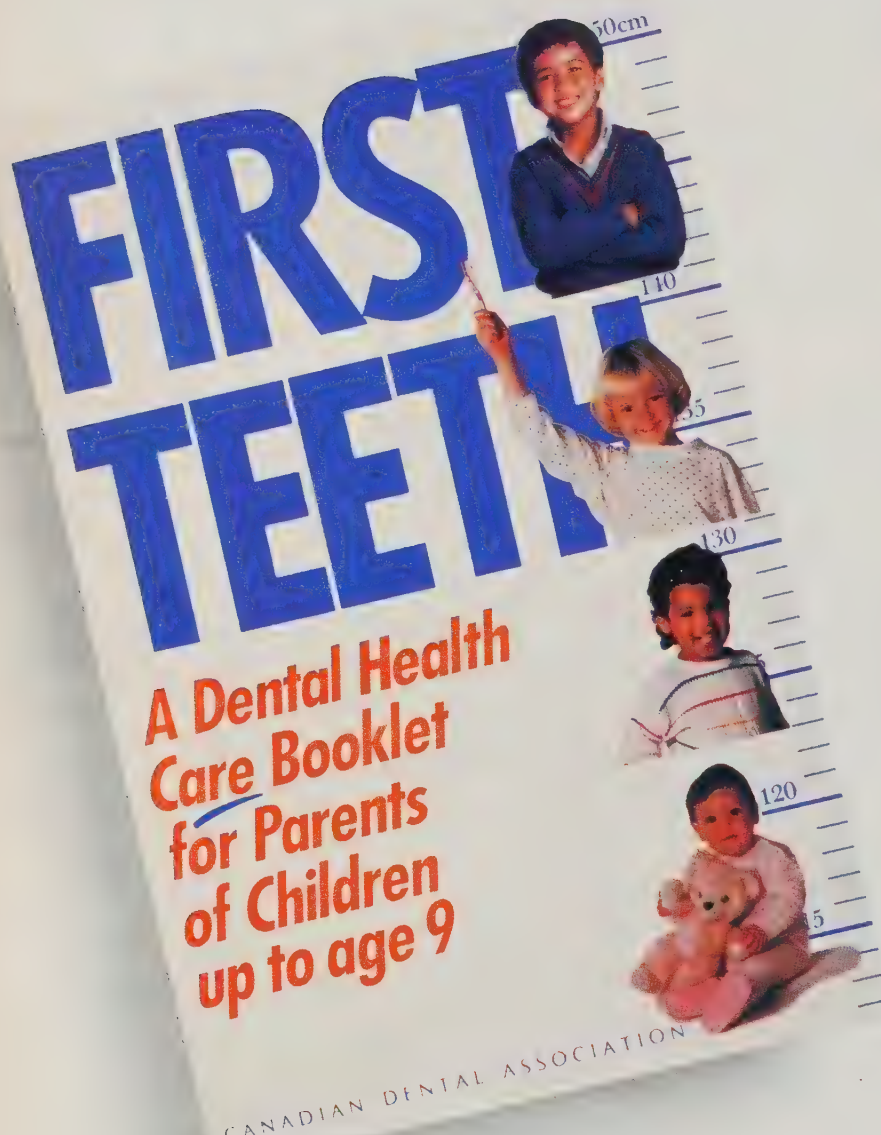
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Endodontics, Past, Present, and Future?

W.H. Christie, DMD, MS, FRCD(C)
Associate professor, Endodontics
Faculty of Dentistry,
University of Manitoba,
780 Bannatyne Avenue,
Winnipeg, Manitoba R3E 0W2

INTRODUCTION

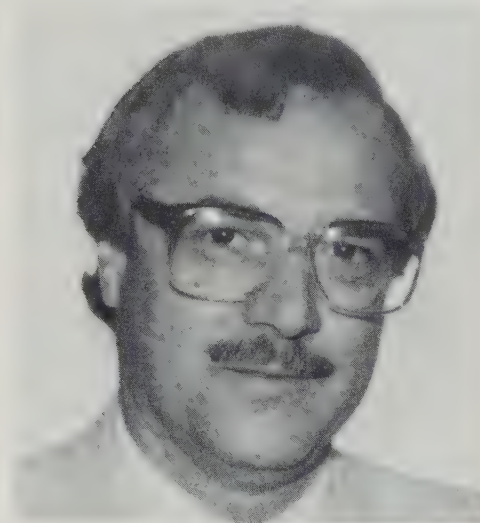
As we enter the last decade of this century, endodontic therapy has become a recognized specialty and not just a branch of operative dentistry. As a treatment modality, it is an important part of a general dental practice. Students are taught not only to perform root canal therapy on anterior and premolar teeth, but also how to manage routine molar canals as well. Most urban areas have endodontic specialists available to consult and to treat the complicated case or perhaps all cases for the practitioner not comfortable with this phase of treatment. By following basic endodontic and biologic principles similar to those discussed by Marshall in this journal in 1962,¹ therapy has gained a reputation for a predictably high success rate.

The aim of any endodontic treatment is to retain the tooth as a functioning member in the dental arch. Although failure to achieve this desired result may occur in even the most conscientious of treatments, the more thorough the elimination of bacteria and toxins from the root canal system, and the most complete obturation in three dimensions, the higher the success rate will be. Some studies² show this success rate can be as high as 95 per cent or more depending on the recall period.

Dentistry has not reached this point in the specialty of endodontics without much clinical research in techniques, development of new instruments, and basic research in pulpal biology and microbiology. Before a discussion on possible future trends in endodontics can begin, it would be best to compare how root canal therapy was done in the past, and contrast that with a few new concepts which have led to these predictably high success rates.

AVANT-PROPOS

Au début de la dernière décennie du présent siècle, l'endodontie est devenue une spécialité reconnue et non seulement une



W.H. Christie, DMD, MS, FRCD(C)

branche de la dentisterie opératoire. Comme mode de traitement, c'est une importante partie de l'exercice de la médecine dentaire générale. On enseigne aux étudiants non seulement à faire des traitements radiculaires sur les dents antérieures et prémolaires, mais aussi à soigner de façon régulière les canaux des molaires. La plupart des villes ont des spécialistes en endodontie que les gens peuvent consulter et qui sont capables de s'occuper des cas compliqués ou peut-être de tous les cas avec lesquels le praticien se sent inconfortable pour ce genre de soins. En suivant des principes endodontiques et biologiques fondamentaux semblables à ceux que Marshall a exposés dans ce Journal en 1962 (1), l'endodontie a réussi à s'affirmer comme une science garantissant un taux de succès élevé.

Le but de tout soin d'endodontie est de conserver les dents comme éléments fonctionnels de l'arc dentaire. Bien qu'il se produise des échecs même quand les traitements ont été très consciencieux, plus l'élimination des bactéries et des toxines des canaux radiculaires et complète et plus l'obturation tridimensionnel est achevée, plus le taux de succès est élevé. D'après certaines études (2), ce taux peut atteindre 95 pour cent et plus suivant les rappels.

En endodontie, la médecine dentaire n'a pas atteint ce succès sans des recherches cliniques sur les techniques, la mise au point de nouveaux instruments et des recherches de base en biologie et microbiologie pulpaire. Avant de pouvoir ouvrir un débat sur les orientations possibles de l'endodontie à l'avenir, il convient d'examiner la manière dont les traitements radiculaires se faisaient dans le passé par opposition aux quelques nouveaux principes qui permettent de prévoir des taux de succès élevés.

Root Canal Therapy in the Past

My experience in endodontics spans a little over 25 years, and those who have practised even longer will probably agree that over that time there has been an evolution in attitudes and concepts. For those practitioners who have graduated more recently, I would like to explain some of the reasons for our previous practices and how concepts have evolved to today's ideals.

First, under the heading of microbiology, the "Era of Focal Infection" in the 1920's had a profound effect on root canal therapy.³ A perusal of the journals of the times will make one aware of the negative impact that "focal infection" had on any dentist who would dare to attempt treatment. The complexity of root canals was known and studied,^{4,5} and many researchers realized that it was impossible to sterilize canal systems. Case reports began to appear where systemic symptoms had disappeared after teeth with septic areas were extracted.⁶

Through a process of evolution, the routine use of cultures is no longer advocated.

The common usage of X-rays helped locate many suspected radiolucencies, but many teeth were lost unnecessarily in the furor of eradicating areas of oral focal infection.

Root canal therapy responded by advocating the use of strong medications in the canals.⁷ Also an era of

fastidious culturing of the bacterial contents of the canal system came about. Often the primary indication for obturation of a case was to achieve two successive negative cultures. This led to a long, drawn-out series of appointments for a treatment. Even the most routine cases took more than five appointments at all dental schools, the University of Manitoba included. Through a process of evolution, the routine use of cultures is no longer advocated.⁸ The problem with false negative and false positive cultures was realized. Clinical indicators are more important in deciding when to obturate a case.

The principle of eliminating bacteria from the canal is still followed, but biomechanical cleansing and shaping and flushing of the entire canal system is kinder to the vital tissues beyond the foramina than relying on harsh medications.⁹ Many of the potent intracanal medicaments have been found to have the potential of triggering an inflammatory reaction.¹⁰ Sodium hypochlorite, in diluted form,¹¹ is perhaps the strongest disinfecting agent used routinely by endodontists now. It is interesting to note that this solution is also advocated for use as a surface sterilizing agent on potentially contaminated operator counter tops.

Instruments Used in Endodontic Therapy

Long handled, carbon steel reamers and files were used in the past to enlarge anterior root canals. The smallest size which could be obtained in these instruments was a #20 in the new "standardized size". The carbon steel corroded quickly and the large sizes were not very flexible. Instruments became dull when used in the presence of sodium hypochlorite or even in the autoclave. It is little wonder that relatively straight roots had to be selected or the instruments would separate or form a ledge in the curved canal. (Fig. 1)

Now, even despite some root morphologies which can be treated in a specialist's office, molar teeth with very little coronal retention can also be prepared for post and core retention.

We are very fortunate to now have very fine and flexible files in #08 and even #06 sizes. Stainless steel is fairly resistant to

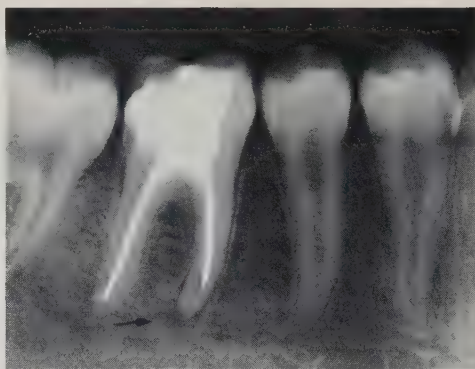


Figure 1. An example of silver point fillings in the mesial canals of curved roots commonly found in mandibular molars. This treatment, done in 1963, was ledged short of the apex and the silver points did not seal the foramen. An arrow points out a periapical radiolucency formed because of the unsealed section of the canal.

corrosion and the incidence of instrument fracture in tortuous canals is relatively infrequent. Now curved canals can usually be instrumented and filled with gutta percha around similar curves. (Fig. 2).

Ingle¹² called for standardization of instrument sizes in 1958 and the fledgling American Association of Endodontists was quick to endorse this plea. Manufacturers followed suit and techniques were devised to fill curved and fine canals with standard size silver points and straight canals with laterally condensed gutta percha also of a standardized size. Many teeth were saved using these techniques, but leakage at the apical foramen was still the most common reason for failure as shown in a study by Dow and Ingle.¹³

New techniques of shaping a canal have been advocated which keep the apical foramen small and maintain the taper in the body of the canal more readily.^{14,15} This reduces tearing of the apex and makes for ease of placement of the filling material. Silver points are rarely used today because it has been shown that a curved canal cannot be made round in cross section using a reaming action.¹⁶ The eccentricity of a preparation was exaggerated if the canal was curved.¹⁷ Studies by Torneck¹⁸ have shown that the "hollow tube theory" is not the reason why canals must be filled, but the canal system should still be sealed in three dimensions to exclude residual bacterial toxins and antigens from apical tissues.

Gutta percha, though it is a material with a long history in dentistry, still seems to be the filling material of choice. Methods of plasticizing the gutta percha to create a better adaptation to the walls of the prepared cavity may include solvents,¹⁹ softening with heat¹⁴ or even

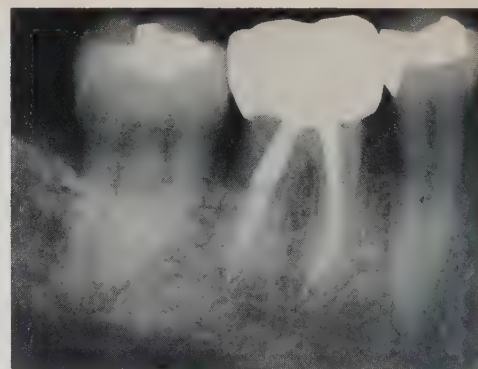


Figure 2. The mesial roots of this mandibular molar, with a comparable curve, were instrumented using new flexible instruments and sealed with gutta percha in 1987 and recalled one year later. Two posts were placed in the double distal canal before the crown was restored.

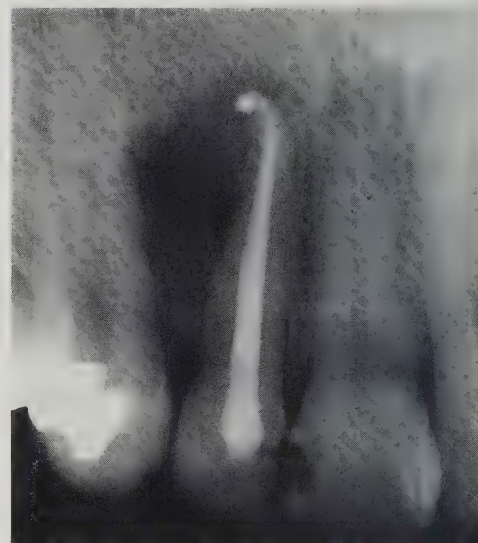


Figure 3. This lateral incisor had a large lateral area around the apex and lateral to the root which may have been interpreted as a cyst in earlier years. A small amount of sealer was extruded while packing the canal using vertical condensation.

injection of thermoplasticized gutta percha.²⁰ All of these methods achieve a better seal when a nontoxic sealer is applied first.²¹ Despite the emphasis which is often placed on one filling technique over another, the most important phase of any root canal treatment is a thorough cleansing and shaping of the entire root canal system.

Some attempts have been made on sealing the foramen using laser energy but heat and contraction may be a problem.

Biologic Principles of Surgery

In an article on endodontic surgery in 1964 an indication for apical curettage was the presence of an apical cyst as

diagnosed by appearance on a radiograph.²² These basic biologic principles remain unchanged over the years, only interpretation and application change with the times. Although it was recognized in the article that a "cyst may resolve if the noxious stimuli from the canal are eliminated", many circumscribed lesions of the time were still being excised immediately after root canal filling.

Research on the histology of lesions taken from the apex of nonvital roots showed there was a near equal distribution between cysts and granulomas.^{23,24} Clinical experience has shown that many lesions resolve after nonsurgical root canal therapy, and therefore many of these cysts must indeed disappear. The value of intentionally overinstrumenting a large lesion with a small file has been questioned and it is felt that the inflammation of endodontic therapy alone is enough to ulcerate many of these cyst walls.^{25,26} No longer is it valid to perform endodontic surgery on radiographic appearance alone. If the root canal system is well sealed, it may take a year or two years of recall to determine that an apical area will not resolve without surgical intervention. (Fig. 3,4)

Predictable Apexification Techniques

Management of the immature apex in previous years must have been the bane of an endodontic practice. Not only was the patient usually young, but also the root apex was fragile and a knife edge shape. The "blunderbuss" shape of the canal was impossible to seal conventionally. Apical surgery and an attempt at retrofilling was often advocated. (Fig. 5)

Apexification techniques were published by Frank,²⁷ who had been told about the method by Kaiser as it was printed in the German literature. The problems of treating an incomplete apex were resolved. Calcium hydroxide paste, placed in a cleaned immature canal, would stimulate apical closure. Over a period of six months to three years, a cap or dome or bridge of calcific material could form at the apex (Fig. 6). Some teeth could even be induced to continue forming a root apex. The end result was a biologic barrier against which a root canal filling material can be condensed without fear of excessive extrusion into cancellous bone space. (Fig. 7)

An article by Heithersay²⁸ summarizes the many uses of intracanal calcium hydroxide. These uses include not only apexification, but also resorptions as first noted by Cvek,²⁹ iatrogenic perforations



Figure 4. On two-year recall the lesion is seen to be filling in with bone without the need for surgical intervention. The sealer was encapsulated and has begun to resorb.



Figure 6. The tooth was accessed, the canal system was cleansed and calcium hydroxide was packed close to the apex to stimulate apexification. The contralateral central incisor continues to form a vital apex.

below the bone level and even for an intracanal disinfectant. Although the results of these other applications may not be as predictable as apexification, its uses are becoming legend.

Present Status of Endodontics

The present day practitioner should not be accused of practising outdated methods of the past as far as endodontic knowledge is concerned. Although there have been many improvements in the way endodontic treatments can be rendered in the past quarter century, there is no excuse for not keeping current. Lectures and courses are frequently presented at the annual Canadian Dental Association Convention, at the annual meeting of the Canadian Academy of Endodontics, and many international

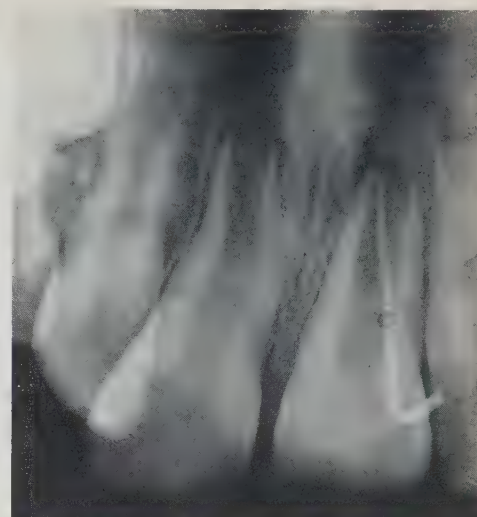


Figure 5. The radiograph shows a central incisor with a nonvital pulp and an immature apex that may have been treated earlier with immediate periapical surgery because of its appearance as a "cyst". A gutta percha point shows the diffuse area of drainage.

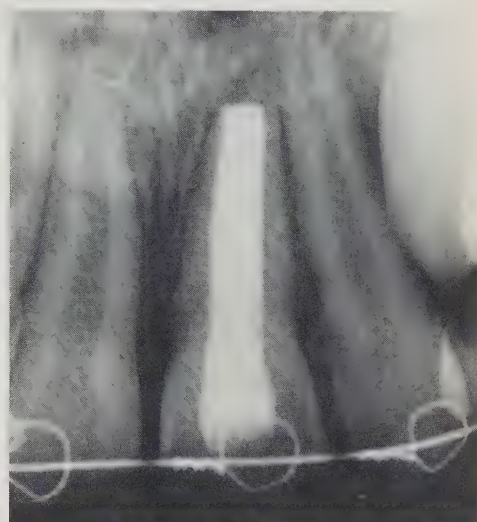


Figure 7. Obturation of the canal space was accomplished with warm gutta percha and vertical condensation against an apical stop. Orthodontic treatment can now proceed without threat of flare-up from a chronic draining area which has resolved.

meetings. Also universities in Canada present continuing education programmes from time to time. A plethora of endodontic texts are also available. Ingle and Taintor's *Endodontics*,³⁰ and Cohen and Burns' *Pathways of the Pulp*³¹ are the two most popular, but Grossman's *Endodontic Practice*,³² Weine's *Endodontic Therapy*,³³ Gutmann's *Problem Solving in Endodontics*³⁴ and many others can all be recommended.

The conscientious practitioner will try to keep abreast of the times, as far as methods and materials are concerned. Not all cases are within the scope of a general practice. Rapport should also be established with a specialist in endodontics if the highest form of service to the patient is to be practised.

Endo-Perio and Endo-Restorative Considerations

The practice of endodontics is most intimately tied in to two other disciplines. Periodontics is the first discipline and would involve both diagnosis and treatment aspects. Lesions of endodontic origin are found around the apical foramen in most cases. However, the result of infection in a root canal system may progress out of a lateral canal and mimic a lateral periodontal abscess (Fig. 8). Periodontal ligament tissue is involved in both instances, just as marginal periodontal ligament is involved in periodontal disease. Much work has been done on understanding the inflammatory process in the periodontal ligament.³⁵ Inflammatory triggers, toxins and bacteria, can often be sealed away from the periodontal ligament in endodontic therapy, so bone regeneration is likely to occur at the periapex (Fig. 9). The situation at the marginal periodontium is not so favoured. Exceptional methods, such as a teflon filter which is placed surgically, are now being employed with some effect in periodontal therapy.

Endo-perio relationships best come into play in treatment considerations. Distobuccal root amputations of maxillary molars with localized bone loss could not be successfully treated without endodontic therapy being done on the other canals. As well, Hemisection and extraction of a hopeless root, or Bicuspidization to manage a furcation involvement in a mandibular molar requires prior endodontics.³⁶ Teeth which would have been condemned in prior years are now being retained much longer through these cooperative treatments.

A method of drying of the prepared root canal system and applying a bonding material throughout, between a suitable core filling and the dentine walls, will have to be experimented with.

The second discipline which benefits from improved endodontic prognosis is restorative dentistry. Post and core crowns for anterior teeth were common in the past. Now, even despite some root morphologies which can be treated in a specialist's office, molar teeth with very little coronal retention can also be prepared for post and core retention (Fig. 2). Elective endodontic treatment on a tooth with a questionable vital pulp is much better than nonvital endodontic therapy which has to be performed through a

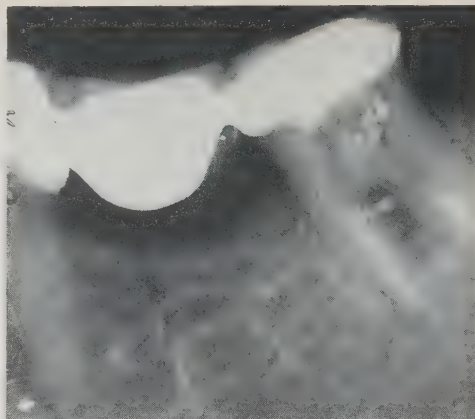


Figure 8. A mandibular molar which was an abutment for a bridge appeared to have furcation involvement and little periapical area. The pulp was diagnosed as nonvital and root canal treatment sealed both the canals and a lateral canal into the mesial furcation area.

crown after the fact. Fixed partial denture treatments are enhanced through the cooperative help of endodontics, when indicated.

Future Trends in Endodontics

Changes in dentistry may be evolutionary, they may be revolutionary, or they may be cyclic. Changes in endodontics may be equally as difficult to predict. However, if we were allowed to gaze into a "crystal ball" there are some fields one may want to predict.

One area of research already well underway is the use of sonics and ultrasonics to enlarge the curved canal.³⁷ Once a constant path to the apex has been established, the shaping of a prepared canal can be a tedious job. Gates-Glidden drills can make it easier to enlarge the straight coronal portion of the root, but researchers are looking to ultrasonics to flair a canal instead. The choice of a diamond file, broach, or rasping instrument used at the correct frequency has shown some promise. Many articles have been published which compare the various machines available today.³³ The fatigue of preparing four long, fine, curved canals in a molar may soon be reduced if this method of preparation becomes common. However, the oscillation of endosonic files is greatly dampened in tight canals, especially at the tip of the instrument.³⁹ This may explain why results of efficiency of the cleansing of canals is so variable when transverse oscillation machines are used.

Lasers applications are also being extensively researched in dentistry. Rapid debonding of orthodontic brackets⁴⁰ and desensitizing of sensitive exposed cementum are a few of the uses

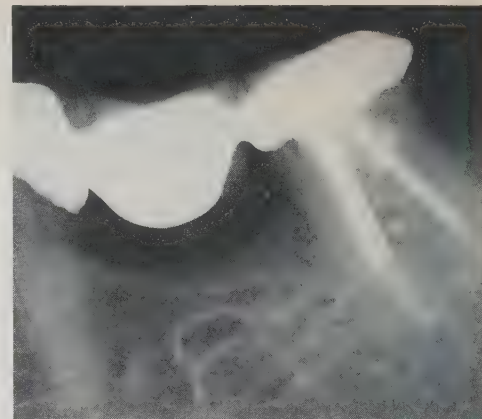


Figure 9. A one-year recall shows three posts placed inside the core of the crown and complete regeneration of bone in the furcation area and at both apices.

being contemplated. Applications in the field of endodontics have not escaped notice. Some attempts have been made on sealing the foramen using laser energy but heat and contraction may be a problem. If the laser can be used to cut cavities in the crown of a tooth, then with the right flexible fiber optic, could the same wave length laser be used in preparing a canal? We could ask also if the laser would be able to sterilize bacteria which are so difficult to reach with mechanical instruments and irritating chemicals. This field is still very much in the experimental stage.⁴¹

Sealing of the apical foramen, lateral canals, and dentinal tubules is important for the long term success of any endodontic treatment. Operative dentistry has a number of filling materials that bond as well as seal not only to enamel but also to dentine. These bonding systems are being used to cement post and cores to dentine of prepared root spaces also. The next step in the process of applying this technology may be to seal the entire root canal. A method of drying of the prepared root canal system and applying a bonding material throughout, between a suitable core filling and the dentine walls, will have to be experimented with.^{42,43} These materials will have to be nontoxic to vital tissues if they are inadvertently extruded out the foramen. The quality of the seal will also have to be superior to zinc oxide-eugenol sealers used at present. Significant research could be just around the corner in this field.

Perhaps the field with most significant advances in recent years is that of osseointegrated implants.⁴⁴ Success rates of over twenty years have been shown in controlled research. The main factor in successful osseointegration seems to be that the implant is sealed out of function and away from bacteria of the oral

environment while bone regenerates. The biocompatibility of titanium or titanium oxide to living bone tissue is also very important. Now that these implants are being placed and followed in a routine treatment modality, contraindications will become apparent. If success rates remain as high as 90 per cent as found in the original studies, one may ask if osseointegrated implants will replace much of the endodontic therapy in the next twenty five years? This is indeed a field to watch in the future!

Endodontic therapy has changed over the years and will continue to change by keeping pace with the future. We have not reached predictably high success rates without diligent clinical treatments and continued research in this branch of dentistry. The future of endodontics is assured if we continue to follow biologic principles. Δ

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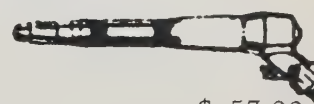
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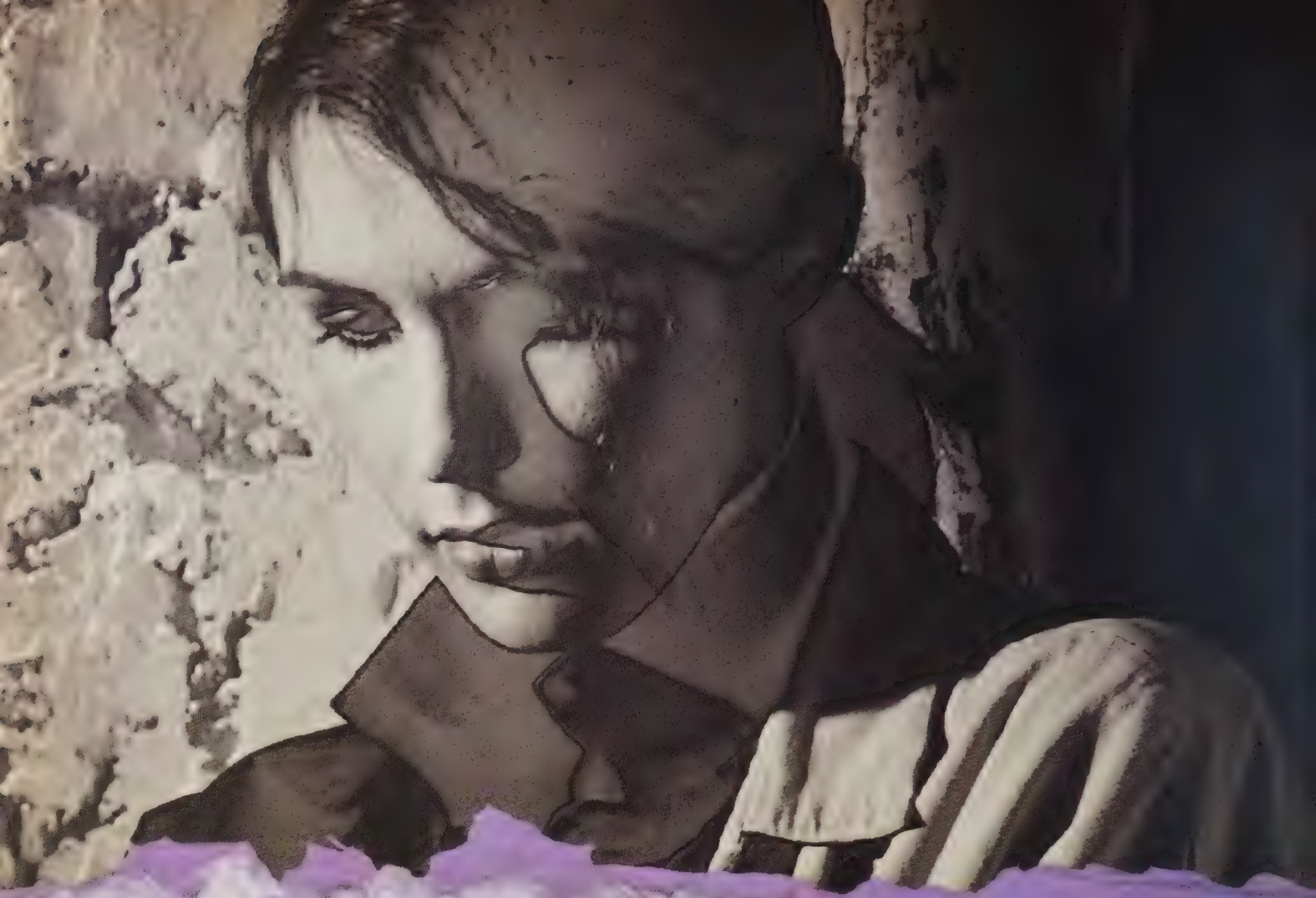
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Efficient and Effective Root Canal Retreatment without Chloroform

Kenneth L. Zakariasen, BA, DDS, MS, PhD
Dean and Professor
Faculty of Dentistry
Dalhousie University
Halifax, Nova Scotia
B3H 3J5

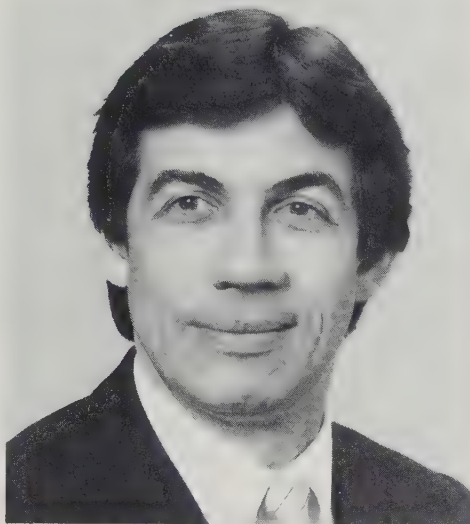
Stephan M. Brayton, BSc, DMD, FRCD(C), FADI
Professor and Head
Division of Endodontics
Faculty of Dentistry
Dalhousie University
Halifax, Nova Scotia
B3H 3J5

Donald M. Collinson, DDS, Spec. Cert. Endo.
Professor and Acting Chairman
Division of Endodontics
Faculty of Dentistry
The University of Alberta
Edmonton, Alberta
T6G 2N8

SUMMARY

A root canal retreatment technique is described which eliminates the need for chloroform as a gutta percha solvent. This technique utilizes the gutta percha softening actions of both a self-heating instrument and the heat-potentiated solvent action of eucalyptol. In addition, sonics/ultrasonics and/or Gates-Glidden drills are suggested as useful adjuncts to canal debridement during re-preparation of the canal system.

Given the controversy regarding the toxicity of chloroform, both for dental patients and dental personnel, practitioners may wish to consider using this retreatment technique to eliminate chloroform from endodontic retreatment procedures, while still achieving effective, efficient root canal retreatment.



Dr. Kenneth L. Zakariasen

Introduction

Root canal therapy, when properly performed, enjoys a high degree of success. However, as with any form of treatment, a certain number of cases will not respond to initial therapy for a variety of reasons and retreatment becomes necessary. Since the primary obturating material for root canals is gutta percha, retreatment means the dentist can be faced with its removal from the root canal system. This has most often been accomplished initially with heated instruments and then by softening the gutta percha with chloroform, an effective gutta percha solvent, followed by removal with root canal files. This has been a successful, time-efficient technique for retreatment.

However, chloroform reportedly produces adverse health effects and should be considered as a potential risk for both patients and dental personnel. Chloroform is an irritant due to both local and systemic toxicity.

If it escapes from the root canal system during endodontic therapy it can locally cause damage to the periradicular tissues, primarily because of its ability to solubilize lipids and thus destroy cell membranes. Systemically, chloroform is hepatotoxic and nephrotoxic.^{1,2} Additionally, chloroform is classified as a carcinogen,^{3,4} but there is a question as to whether chloroform is actually carcinogenic in humans.⁵

Based upon present information, the authors believe that when chloroform is properly utilized in endodontic therapy, i.e. small quantities confined to the root canal space, it is unlikely to be a significant health hazard to patients. However, if health hazards do exist relative to chloroform's use in endodontic procedures, it is more likely that the significant hazards are occupational health hazards for dental personnel.^{6,7} These individuals could be repetitively exposed to chloroform over a period of many years. The effects of low dosage, chronic exposures, if present, are most likely difficult to recognize and measure. Given these unknowns regarding the health hazards of chloroform, it would be wise to eliminate its use whenever possible.

Such elimination creates the quandary of finding a biologically acceptable replacement for chloroform which allows effective dissolution and removal of gutta percha from the canal system in a clinically useful time frame. Unfortunately, analysis has shown that many possible substitutes for chloroform exhibit high volatility, are flammable, are toxic or carcinogenic, or require further studies in root canals requiring retreatment.⁸ Thus, a ready replacement for chloroform does not stand out.

Eucalyptol can be supported as one replacement which does not have the more adverse side effects presently attributed to chloroform. Eucalyptol has a safe use history as an inhalant, has been used as an ointment in rhinitis, as a liniment and taken by mouth for catarrh.⁴ Eucalyptol, being less volatile than

SOMMAIRE

Voici une technique pour la reprise d'un traitement radiculaire qui élimine le besoin de se servir de chloroforme comme solvant de la gutta-percha. Cette technique utilise pour ramollir la gutta-percha les pouvoirs d'un instrument chauffant et de l'eucalyptol qui acquiert des propriétés dissolvantes sous l'effet de la chaleur. En outre, il est recommandé d'utiliser des forets soniques/ultrasoniques ou de marque Gates-Glidden comme accessoires utiles pour le débridement des canaux qu'on veut préparer pour un nouveau traitement.

Étant donné la controverse touchant la toxicité du chloroforme tant pour les patients que pour les professionnels dentaires, il se peut que les praticiens songent à utiliser cette technique pour éliminer le chloroforme quand ils procèdent à de nouveaux traitements endodontiques tout en s'assurant que les nouveaux traitements radiculaires seront bons et efficaces.

chloroform, also has some advantages in storage, dispensing and application.

Many practitioners have routinely utilized eucalyptol as a gutta percha solvent for customizing master cones in the same manner as chloroform has been used for this purpose.

While eucalyptol works well to soften the surface of a gutta percha master cone for custom fitting, it is a solvent which softens gutta percha much more slowly than chloroform at room temperature.⁸

It is thus not efficient when used for traditional canal retreatment. However, heating eucalyptol will increase its gutta percha solubilizing effects.⁹

The advent of self-heating spreader/plugger devices, which can be kept continuously hot while working, has made possible an effective and time efficient root canal retreatment method utilizing eucalyptol as the gutta percha solvent of choice. This technique will be described in detail in this article.

Overview of Retreatment Technique

This retreatment technique essentially involves keeping the access space and canals continually wet with eucalyptol as the self-heating instruments are worked into the gutta percha of the canal being retreated. As the hot instrument is worked apically, it will soften and remove gutta percha while at the same time working heated eucalyptol into the gutta percha remaining in the canal system. When the spreader or plugger has reached as far apically as it will safely negotiate, the operator switches to endodontic files, all the while keeping the canals wet with eucalyptol, and continues the process of gutta percha removal until working length is reached. Thus, this retreatment technique is primarily based on the use of a combination of self-heating spreaders/pluggers, eucalyptol and endodontic files.

The application of sonics and/or Gates-Glidden drills will also be discussed as a useful adjunct to the technique described above, both for aiding in effective gutta percha removal and in preparation of the root canal for re-obturation.

Rationale for Retreatment Technique

The rationale for this retreatment tech-

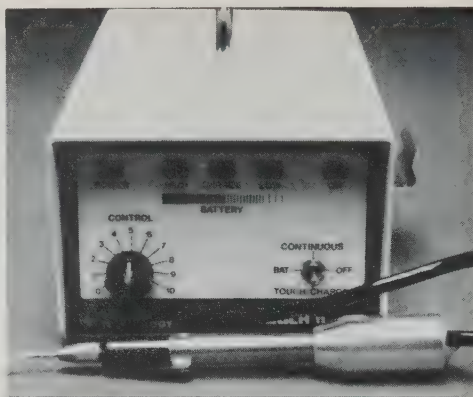


Figure 1. Self-heating spreader/plugger device. (Model 5001, Analytic Technology, Redmond, Washington)

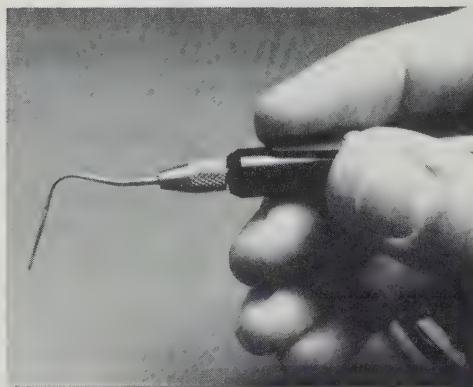


Figure 3. Self-heating spreader/plugger handpiece is a convenient size and shape for both operator handling and intra-oral placement.

nique is based on the following four points:

1. Self-heating spreaders/pluggers can be set to a specific temperature level and can be maintained continuously at that temperature (**Figures 1-3**). The hot instrument will soften gutta percha and at least partially remove it from the root canal. With alternating apical and coronal movements, the instrument can be easily made to penetrate extensively into the gutta percha which is obturating the canal.
2. When the access space and canal spaces (as gutta percha is progressively removed from the canals) are kept wet with eucalyptol, the action of the hot spreader or plugger as described above will work the eucalyptol down the canal and into the gutta percha where its solvent action will aid in softening the gutta percha for removal.
3. The heat of the hot instrument also accelerates and potentiates the solvent action of the eucalyptol, thus rendering it a more effective gutta percha solvent and shortening the time required for dissolution of the gutta percha.
4. When the hot instrument or plugger has reached the furthest apical extent



Figure 2. Selection of spreader and plugger tips available for self-heating device.

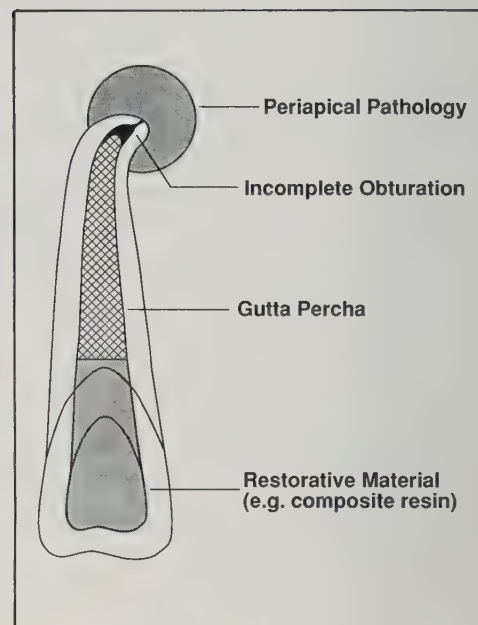


Figure 4. Failing root canal therapy.

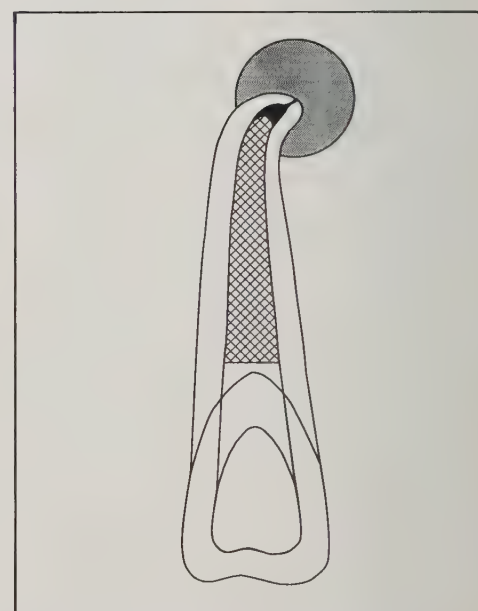


Figure 5. Restorative material removed from access space — gutta percha exposed.

which the canal will safely permit, and there is still apical gutta percha

remaining, the eucalyptol in the canals can be repeatedly warmed as necessary with the hot instrument so as to maintain its solvent action at a high level. Root canal files can then be used to easily remove the remaining apical gutta percha.

A Step-By-Step Description of the Retreatment Technique

1. The tooth undergoing retreatment should be isolated by rubberdam. An access opening should then be prepared which eliminates all cement and other filling materials from the access space and uncovers the gutta percha in the orifice of each root canal (Figures 4 and 5).
2. The chamber should then be flooded with several drops of eucalyptol which is introduced into the access opening via an irrigating syringe (Figure 6). Since eucalyptol is much less volatile than chloroform, it will not have to be replenished into the tooth nearly as frequently as is required when utilizing chloroform.
3. The self-heating instrument should then be used to heat the eucalyptol, soften the gutta percha, work the eucalyptol into the gutta percha and, finally, to remove gutta percha from the canal. This can be done with either a spreader or plugger tip used in a repetitive in-out (apical – coronal) motion to penetrate down the canal (Figures 7-9). After the instrument partially penetrates the gutta percha, the instrument should be removed from the canal and the gutta percha clinging to the tip removed.

This process of penetrating and removing gutta percha with the hot instrument should be repeated until the penetration is achieved close to the apex if possible, i.e. into the apical one-third of the canal.

The heat level setting utilized depends on the gutta percha which has been used to obturate the canal. Different brands vary in their responses to heat softening. It is best to set the heat level in the mid-range (approximately level five) to begin and then turn it up if you find the instrument isn't sufficiently hot to soften the gutta percha easily.

It is important that the access opening and canals be kept wet with eucalyptol during the entire process.

It is the combination of heat from the instrument and the heat-potentiated solvent

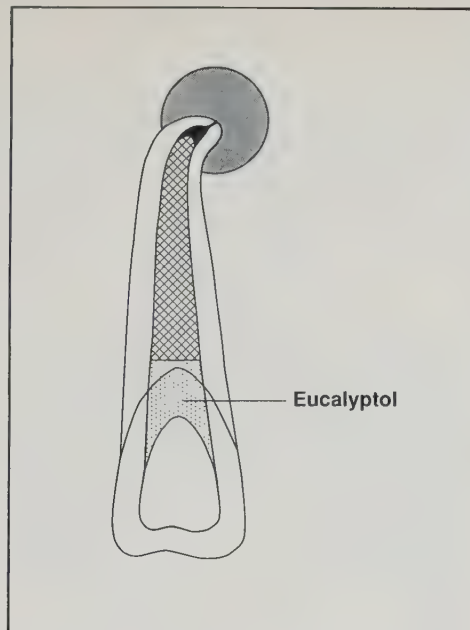


Figure 6. Eucalyptol placed in access space (utilizing an irrigating syringe).

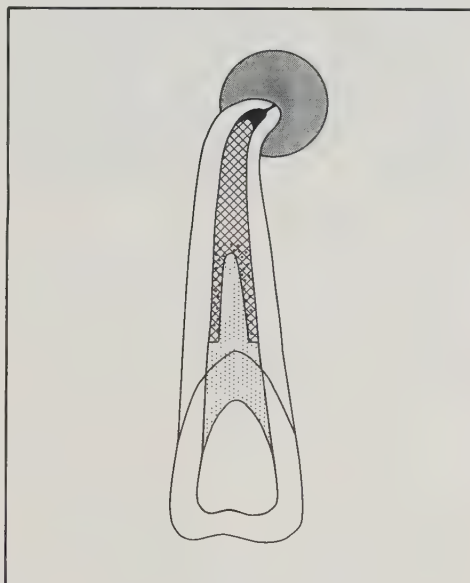


Figure 8. Heated instrument is used to remove gutta percha from canal space.

action of the eucalyptol that allows complete, rapid softening and removal of the gutta percha throughout the entire canal system.

Neither the heat nor the eucalyptol will work well alone.

However, unless the canal being retreated is extremely large and straight, it is unlikely that the spreader or plugger will penetrate to full working length. Indeed, it is safer for the periapical tissues if the hot plugger does not reach this far, but rather that the apical gutta percha is removed with endodontic files as indicated in Step 5.

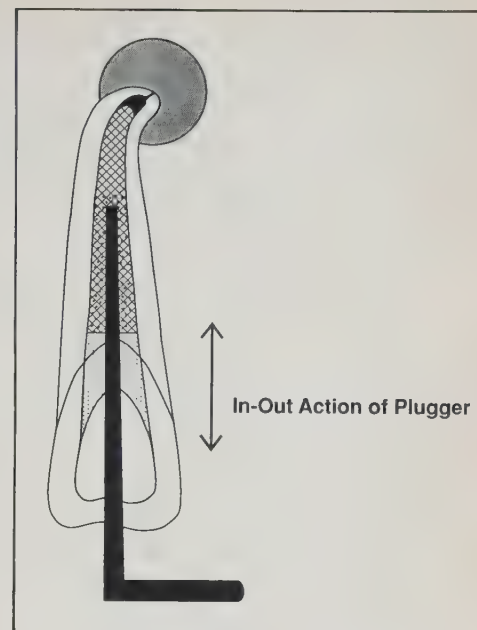


Figure 7. Heated instrument softens and works eucalyptol into gutta percha.

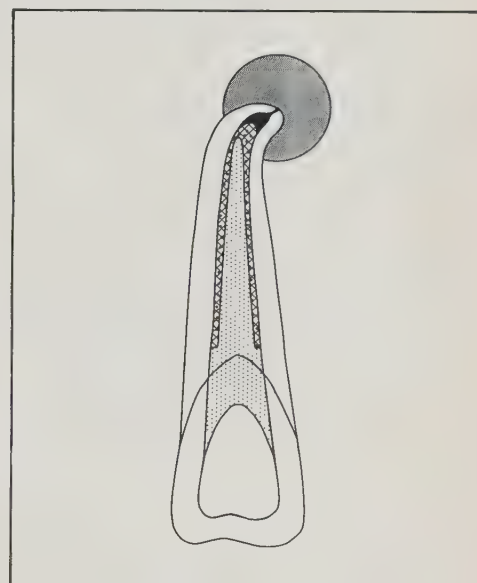


Figure 9. Heated instrument repeatedly softens and removes gutta percha as far as it will penetrate.

4. When much of the gutta percha has been removed from the canal (i.e. into the apical one-third of the canal) an endodontic file should be placed in the canal, a radiograph taken and working length determined.

Accurate determination of working length is important not only for proper canal instrumentation and obturation, but also so that gutta percha and solvent are not pushed through the foramen into periapical tissues.

5. Following the removal of as much gutta percha as is practical and safe with the spreader or plugger tip, the remaining gutta percha should be removed with endodontic files to full working length. This can be easily

done since the heated eucalyptol will have penetrated and softened this gutta percha (**Figure 10**).

It is important to re-emphasize that the canal should be kept wet with eucalyptol during this process. If more solvent action is needed, the eucalyptol can be also be reheated with the hot instrument.

When removing the remaining gutta percha to full working length, it is easiest to begin with a small file (e.g. #15) and work-up from this size. Such a process will facilitate penetration of the gutta percha by both the files and the eucalyptol.

6. When the gutta percha has been removed, the canal space system should be thoroughly irrigated with sodium hypochlorite to remove both debris and solvent from the canal.
7. The root canal should now be prepared properly so that successful obturation may be accomplished (**Figure 11**).

Application of Sonics/ Ultrasonics and/or Gates-Glidden Drills

Many practitioners prefer to utilize sonic/ultrasonic instrumentation and/or Gates-Glidden drills in conjunction with hand files for debriding, enlarging and shaping canals prior to obturation. In the case of canals being retreated, the canal walls contain not only pulpal remnants, but also gutta percha and root canal sealer debris. Sonic/ultrasonic instrumentation utilizes a vibrating instrument with copious irrigation which is particularly advantageous in debriding such materials from

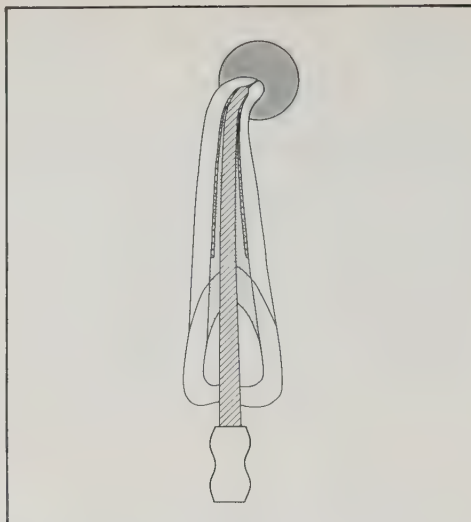


Figure 10. Endodontic file is used to remove gutta percha to working length. The canal is then flushed with NaOCl.

the canal system. Gates-Glidden drills are also frequently utilized to enlarge the straight portions of canals. Their mode of action is rotary motion and, as such, Gates-Glidden drills are very effective in planing the canal walls. These drills should thus be quite effective in removing the canal wall debris associated with failed obturations.

While these devices are useful in routine canal preparation, they are particularly helpful in retreatment cases and should be considered for addition to your endodontic armamentarium if they are not currently being utilized. Δ

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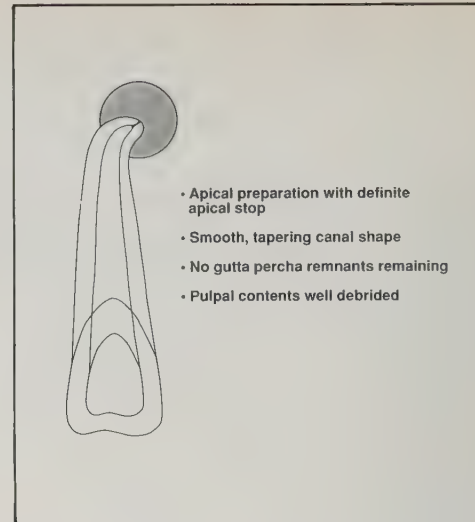


Figure 11. The canal is re-prepared for obturation using hand files, copious irrigation and, optionally, sonics and/or Gates-Glidden burs.

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Curved root canals

Fifty extracted fully-developed human mandibular first and second molars were randomly divided into 5 groups of 10 teeth so that the average degree of root curvature of the mesial roots was equal. Access cavities were prepared in the crown and the root length of the mesio-buccal and mesio-lingual canals determined to permit preparation of one of the canals (MB and ML) in one of five different ways.

- A) Hand instrumentation using the Weine technique with Kerr K-flex files.
- B) Ultrasonic preparation with the Cavi-Endo System after hand preparation to a #15 K-flex file.
- C) Ultrasonic preparation with the Enac Ultra-Endo System after hand prepa-

- ration to a #15 Zipperer K file.
- D) Sonic preparation with the Endo-Sonic Air MM 3000 after hand preparation with a #15 K-flex file.
- E) Sonic preparation with the Endostar 5 Endodontic System after hand preparation with a #15 K-flex file.

Tap water was used as the irrigant and all the procedures were done by one operator. The uninstrumented canal served as a control. The mesial roots were severed from the tooth, prepared histologically in cross-section and evaluated microscopically as to the amount of predentin/dentin removed, amount of soft tissue removed, and the direction of canal transportation. Scores for each group were recorded and evaluated statistically using ANOVA and a two-factor analysis of covariance.

No significant differences were noted in the preparation of the experimental canal in the 5 groups. Extrusion of debris

through the apical foramen, transportation of the canal toward the outside of the canal curve in the coronal and apical portions of the canal and toward the inside of the canal curve in the mid-portion of the canal, and lack of uniform debridement with residual debris in canal fins and isthmuses, were common to all the preparation techniques examined. Δ

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Update on Endodontic Diagnosis

Herb H. Borsuk, DDS, MScD, FRCD(C)
Assistant Professor
Director of the Division of Endodontics
Faculty of Dentistry
McGill University

ABSTRACT

The art of diagnosis can either be a frightful, uncertain chain of procedures or it can be an organized gathering of facts which enable the diagnostician to determine a proper regime of treatment.

SOMMAIRE

L'art de poser un diagnostic peut se définir comme une suite de procédures incertaines et peu rassurantes ou comme une cueillette méthodique de données permettant au diagnostiqueur de déterminer un bon mode de traitement.

Medical History

The dentist must listen carefully to clues given by the patient as to the nature of the complaint.

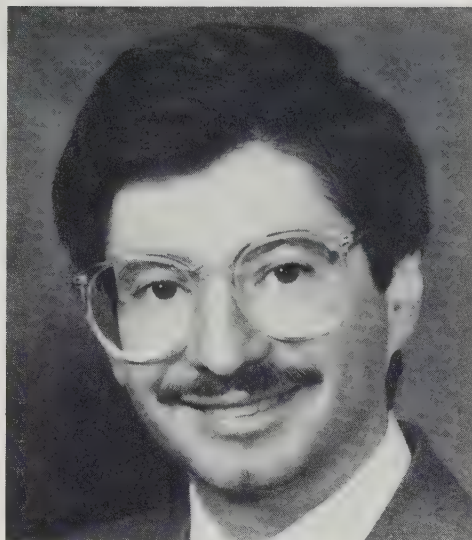
The patient is asked about medical conditions which might affect the diagnosis and treatment plan. For many years, the medical history was taken so that the patient could be treated in a manner that was in his best interest. Today the dentist must not only consider the effects of the treatment on the patient, but the impact of the patient's medical profile on the health of the dental staff and potential cross-contamination with other patients.

There are virtually no medical contraindications to routine endodontics; however, many situations may require altering the course of treatment (i.e. medical condition, past dental history, regime of medications, etc.)

Dental History

The dentist must verbally probe the patient for necessary information relative to the dental problem at hand.

A patient's prior dental experiences may be helpful in describing the present situation. If the patient has experienced



Dr. Herb H. Borsuk

an acute pulpitis or an acute apical abscess in the past, then he most probably would remember any similarities to the present condition.

The dentist should question the patient relative to his "reasons for being here" and should record the patient's own responses to the questions.

It is important to find out when and for how long the patient has had the pain, swelling or tenderness, or cracked tooth, etc. It is also important to note if any recent dental work was performed or if the patient was warned in the past of some potential tooth problems. Other questions to be asked are: has the patient experienced these symptoms before in this or any other region in his mouth; if he is experiencing pain, where is it located; where did it start; did it travel; what makes it worse; what makes it better; when it goes away, does it linger in any area; how long does it last; what is the nature of the pain (sharp, throbbing, electric, dull, etc.); when was it first noticed; does it start by itself; what type of pain killers (if any) are necessary to remove the pain; and how well do the pain killers work. Answers to the above questions give us a starting point. Usually we know which side of the mouth is involved and sometimes which jaw. We can now proceed with the modes of testing in order to make a definite diagnosis.

Inspection

All hard and soft tissues of the mouth should be quickly scanned for any obvious pathology or abnormal conditions. The dentist should first look into the patient's mouth using a mirror and a good light. Have the patient turn his head in such a way as to give good visibility to all areas. Check all four quadrants of the mouth.

Any areas that seem unhealthy should be palpated with a cotton tip applicator or gloved hand. An explorer or perio probe can also be utilized to help inspect the hard and soft tissues. It is incumbent upon the operator to use a very light touch because of the potential to aggravate any inflamed condition being explored.

Normal teeth vary considerably in shade so a tooth should be compared not only with those adjacent to it, but also with the contralateral tooth.

The colour and texture of the affected tissues should be noted on the chart. Normal teeth vary considerably in shade so a tooth should be compared not only with those adjacent to it, but also with the contralateral tooth. Any fracture lines, however small, should be noted because they are signs of trauma.

Inspection also may include palpation of lymph nodes in the submental, submandibular and upper deep cervical groups.

Tooth mobility should be tested by pressing it to and fro between the index finger and thumb.

Radiograph

The radiograph is one of the most important components of the diagnostic process.

Besides giving insight below the surface, it gives a permanent record of the hard tissues prior to any dental treatment. In this age of "legal diarrhea," it is an important universally acceptable piece of evidence of a patient's condition.

The types of radiographs usually taken that can give adequate details are intra-oral periapical films and bite wing films. Having already spoken to the patient, and having inspected the patient's oral cavity, the dentist should have a good idea as to the probable area causing the disturbance. Bite wing films give us more information about the condition of the crowns of the teeth and help us to study restorations, contact points and caries. Periapical films give us a view into the whole tooth and we get information on the shape and number of canals and roots, the presence of calcifications and resorptions, the condition of the surrounding bone, and the relationship of the pulp cavities to the surface of the tooth and surrounding teeth.

Off angle radiographs help us to view better the three dimensions of the tooth on a two dimensional film. Maxillary anteriors can be viewed from a mesial or distal orientation depending on the distortion caused by the film lying near the palate.

Off angle radiographs help us to view better the three dimensions of the tooth on a two dimensional film. Maxillary anteriors can be viewed from a mesial or distal orientation depending on the distortion caused by the film lying near the palate. Maxillary first premolars are best photographed if the cone is positioned over the cuspid.

Maxillary molars should be radiographed with the beam coming slightly from the mesial.

Mandibular molars should be radiographed with the beam coming from the distal.

These angles tend to separate the roots and make it easier to see all of the canals.

If a fistula is seen in the mouth, then a radiograph with a gutta percha tracer is almost mandatory.

The x-rays should be read carefully edge to edge. An obvious pathological condition should not overshadow other potential problems seen in the film.

Percussion and Pressure

In the diagnostic work up, the dentist is now ready to manipulate and stimulate the teeth so as to expose the tooth which may be the trouble spot.

It is necessary to duplicate the patient's symptoms when attempting to stimulate the tooth. If the patient complains about pain on cold, then it behooves us to use



Fig. 6 — Radiograph with a gutta percha point tracing to a mid-root fracture on tooth #24.

cold on the teeth. If biting is sore then we percuss and apply pressure on the teeth.

Why are teeth sore to percussion and pressure? Pressure pain is a result of nerve stimulation in the bone or periodontal ligament. It can also be caused by the pulp, if the tooth is fractured and fluid movement takes place when the tooth is pressed or percussed. Periodontal ligament pain in the case of a fractured tooth, can be a result of expansion or contraction of the ligament when the fractured segments move. Inflammation is the major cause of tooth sensitivity to percussion and pressure in the absence of fracture. This inflammation periapically precedes the wave of pulpal degeneration that usually travels in a coronal-apical direction.

Even with pulpal vitality, one often finds a tooth which feels "different" from the others on percussion. This is the periapical inflammation. When the pulpal degeneration reaches the apex, then the noxious tissue breakdown products and bacteria, cause further periapical breakdown causing more inflammation and possible infection.

Periodontal ligament pain in the case of a fractured tooth, can be a result of expansion or contraction of the ligament when the fractured segments move.

The percussion procedure is as follows. First percuss the teeth on the opposite arch in the area of the suspected tooth. This allows the patient to experience "normal" percussion sensitivity without fear of hitting the sore tooth. Then the teeth mesial and distal to the suspected tooth are percussed. Finally, the suspect tooth is knocked lightly with the handle of the mirror or other instrument. Percuss

the tooth occlusally, labially and palatally: Also percuss the cusp tips individually. The most sensitive tooth is usually the culprit. If teeth in opposing arches which occlude are sore, then possibly the problem is only an irregular occlusal contact requiring adjustment alone.

Pressure testing of the teeth requires the application of a foreign object between the maxillary and mandibular teeth and having the patient masticate on the object. The materials used could be a wet cotton roll, plastic X-ray holder, or special plastic devices used to detect fractured cusps. This test is a little kinder to the patients because they themselves are applying pressure. Any supersensitive tooth is subject to suspicion.

Pulp Tests

These tests are used to determine the status of the pulp. It is believed that a pulp suffering from acute pulpitis or hyperemia, is more sensitive than normal and a degenerated pulp is less sensitive than normal.

When doing pulp tests, it is important to have an understanding and cooperative patient, since the results of the testing are dependent solely on the patient's reaction to certain stimuli on the teeth. If for example, the patient has recently taken strong analgesics, then the testing may be of no value.

We can divide these pulp tests into thermal, electrical and mechanical.

The effective thermal stimulus (cold or heat) depends on the temperature and volume applied, the area of contact with the tooth and the thickness, thermal conductivity of enamel and dentin, and the presence or absence of restorations and pulpal calcifications.

Thermal

Various stimuli have been used for cold testing including, solid carbon dioxide (dry ice), small cylinders of ice (anesthetic carpule with ice), refrigerant liquids (Ethyl chloride), and thermo electric stimulation.

The effective thermal stimulus (cold or heat) depends on the temperature and volume applied, the area of contact with the tooth and the thickness, thermal conductivity of enamel and dentin, and the presence or absence of restorations and pulpal calcifications. All of the variables are responsible for the wide degree of reliability of these tests.

Generally speaking, teeth that respond to cold have vital pulps. Thermal testing changes tooth temperature and stimulates nerve endings in the pulp. Changes in tooth temperature are conducted via the dental fluid to the pulpal neural plexus and cause sensation or pain. It is probable that cooling the external surface causes the thermal energy to depart from the deeper pulpal tissue toward the surface, and creates a change in pulpal osmotic pressure, which stimulates nerve endings. The outward flow of dentinal fluid can cause pain. Teeth with healthy pulps react predictably to stimuli, but diseased pulps respond erratically and may have lingering effects. Recently, ice and ethyl chloride have been replaced by dry ice (carbon dioxide), which is easier to confine to the testing spot (does not melt) and is colder (-79°C) than frozen water. It maintains a constant level of cold and is cold enough to penetrate metal restorations and enamel and dentin bases to stimulate pulp tissue. The cold test is one of the relative response of one tooth compared to other teeth. The response to cold is immediate and usually disappears when the cold is removed. In some instances, all that is necessary to stimulate the tooth to cold, is blowing lightly on the tooth with an air syringe.

Patients may report pain or sensitivity to hot foods and beverages. In severe cases, patients present sipping ice water or chewing ice cubes because the oral temperature is enough to cause them pain in a tooth.

To reproduce the pain to heat, sources such as heated baseplate gutta percha instruments, softened impression compounds or a stream of warm water may be used. The heat source should be applied longer than the cold test. The pain in an inflamed pulp usually does not disappear as soon as the heat is removed. In fact, one can have a paroxysmal reaction. That is, the pain having been initiated by the heat now builds to a crescendo after the heat is removed. The pain can last from seconds to hours. It can be relieved by cold application.

It is postulated that in healthy pulps, there is a pulpal pressure that is well below the pressure which is necessary to cause pain. In inflamed pulps, there is an increased pulpal pressure. As well, the pulpal nerves have a lower threshold to be stimulated. As the heat is applied, the pulpal pressure increases and the pain threshold is passed, causing discomfort. In time, the intrapulpal pressure can be such that body temperature is enough to surpass the pain threshold and relief can only be found by cooling the tooth and

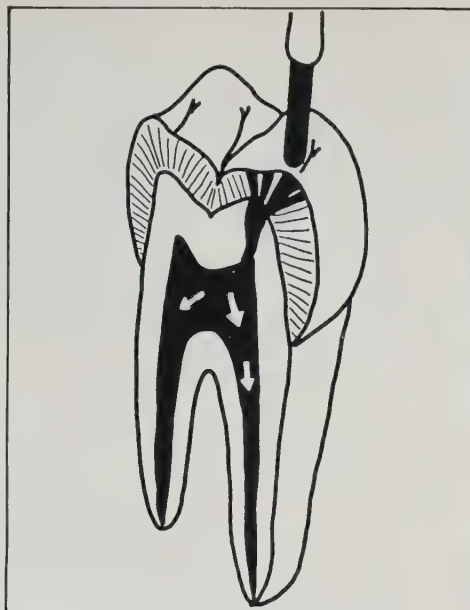


Fig. 5 — The electric current passes through all the canals.

thereby reducing intrapulpal pressure.

Electrical

The electric pulp tester is erroneously called a "vitalometer" when in fact the EPT stimulates nerves rather than measuring tissue viability. The EPT may elicit a response in the periodontal ligament.

One must remember that the most popular EPT's are unipolar, and that the dentist is used as part of the circuit. Operating such devices as electric pulp testers while wearing rubber gloves, does not allow the circuit to be completed and the EPT will not work. The dentist must be aware of what is required to operate each electric pulp test and take the necessary steps to complete the circuits.

The teeth tested must be dry and isolated such that a good contact with the electrode is not undermined by saliva or gingival fluid.

As the electric current is increased, at one point the nerves will be stimulated giving a tingling electrical sensation to the patient. At this point, the patient should notify the dentist.

If the correct techniques are used, then a response indicates the presence of living nerve tissue, although it is possible to obtain a response from a pulp which is moribund, provided there are pulpal remnants in the apical portion of the canal. The responses of teeth are recorded relative to the adjacent teeth. There seems to be no evidence that the quality of the sensation produced is a guide to the pulpal condition.

Teeth that have had recent traumatic blows do not respond to electrical stimulation. Although subject to many limitations, EPT can be helpful in some doubtful cases.



Fig. 1 — Tooth isolated and ice pencil (or CO₂) applied to labial surface.



Fig. 2 — Heat test with baseplate Gutta Percha.



Fig. 3 — Electric pulp tester.



Fig. 4 — EPT on a tooth isolated from moisture and saliva.

Mechanical

When dentin is exposed following a fracture or cavity preparation, the vitality of the tooth may be tested by mechanical stimulation using a rotating bur, a probe or an excavator. No local anesthesia should be given. Sometimes it is necessary to drill into a tooth solely for the purpose of testing a tooth's sensitivity. This is called a test cavity. This is the test of choice when radiographically, a peri-apical radiolucency seems to be of pulpal origin, or if a tooth has a large restoration which does not allow for either electrical or thermal testing. A negative cavity test (i.e. drill into the pulp canal space) with no anesthesia and no pain is the best of all available testing devices. The dentist should drill at high speed and with no water spray. In this way, if there is vitality in the pulp, the patient will notify the dentist before the cavity is drilled very deep into dentin.

On exposed roots and exposed dentin, just scraping an instrument over the surface can generate discomfort if vitality is present in the pulp, and this too can be diagnostic.

Transillumination

This is a method in which light is shone through a tooth and the emerging light is viewed, to observe any differences in the amount of light transmitted. Any variation in translucency may indicate the presence of disease. Proximal caries may be found this way, and a non-vital tooth transmits less light than a normal tooth. Post trauma, a darkened tooth is usually caused by degenerative haemorrhage in the pulp chamber, with aspiration of blood elements into the dentinal tubules. These elements darken in the same way as a scab which forms over a skin wound.

Anesthetic

If a patient presents with a non-specific pain, and it is difficult if not impossible to test the individual teeth (e.g. full coverage bridgework), then specific injections of local anesthetics using intra ligamentary or infiltration techniques, can usually identify if not the individual teeth, then the area of pain.

The final test if all else fails, is the test of time. Give the patient analgesics and antibiotics if appropriate, and keep the patient closely monitored until the tooth pain localizes.

Over the years, the art of diagnosis has not really changed much, but has been modified slightly with an increased understanding of the biologic principles involved. Δ



^(acyclovir) **ZOVIRAX** OINTMENT 5% (4 g and 15 g tubes)

INDICATIONS AND CLINICAL USE: ZOVIRAX Ointment 5% is indicated for the management of initial episodes of genital herpes simplex infections. It is also indicated in the management of nonlife-threatening cutaneous herpes simplex virus infections in immunocompromised patients. The prophylactic use of this preparation has not been established.

In genital herpes, appropriate examinations should be performed to rule out other sexually transmitted diseases.

These indications are based on the results of a number of double-blind, placebo-controlled studies which examined changes in virus excretion, healing of lesions and relief of pain. Because of the wide biological variations inherent in herpes simplex infections, the following summary is presented merely to illustrate the spectrum of responses observed to date. As in the treatment of any infectious disease, the best response may be expected when therapy is begun at the earliest possible moment.

In immunocompromised patients, 93% were virus negative after 5 days of topical ZOVIRAX therapy, whereas only 35% of placebo recipients were virus negative at the same time.

In patients with herpes labialis, there was a significantly greater decrease in the amount of virus excreted after one day of therapy in those receiving ZOVIRAX within 8 hours of the onset of cold sores when compared to identically treated placebo patients.

Because complete re-epithelialization of herpes-disrupted integument necessitates recruitment of several complex repair mechanisms, the physician should be aware that the disappearance of visible lesions is somewhat variable and will occur later than the cessation of virus shedding. All immunocompromised patients who received topical ZOVIRAX had healed their lesions 23 days after the initiation of a 10-day course of therapy. 75% of placebo patients had healed lesions at that point. Some placebo patients continued to have visible lesions for more than 30 days.

Pain associated with herpes infections is highly variable in frequency and intensity. One hundred percent of the ZOVIRAX-treated immunocompromised patients were pain-free by day 23 versus 70% of placebo-treated patients.

Whereas cutaneous lesions associated with herpes simplex infections are often pathognomonic, Tzanck smears prepared from lesion exudate or scrapings may assist in the diagnosis. Positive cultures for herpes simplex virus offer the only absolute means for confirmation of the diagnosis.

CONTRAINDICATIONS: ZOVIRAX Ointment 5% is contraindicated for patients who develop hypersensitivity or chemical intolerance to any of the components of the formulation, such as polyethylene-glycol.

WARNINGS: ZOVIRAX Ointment 5% is intended for topical use only and should not be used in the eye or on mucous membranes.

PRECAUTIONS: The recommended dosage, frequency of application and duration of treatment of ZOVIRAX Ointment 5% should not be exceeded.

It is not known whether acyclovir is excreted in human milk.

Because many drugs are excreted in human milk, caution should be exercised when ZOVIRAX is administered to a nursing mother.

ZOVIRAX Ointment 5% should be used during pregnancy only if the physician feels the benefit will outweigh the possible harm to the fetus.

Safety of use of ZOVIRAX Ointment 5% in children has not been established.

There exist no data, at this time, which demonstrate that the use of ZOVIRAX Ointment 5% will prevent transmission of infection to other persons.

Since most cutaneous herpes simplex virus infections result from reactivation of latent virus, it is unlikely that ZOVIRAX Ointment 5% will prevent recurrence of infections when applied in the absence of signs and symptoms. ZOVIRAX Ointment 5% should not be applied in an attempt to prevent recurrences: application should commence only at the earliest prodromal sign of disease onset.

Although clinically significant viral resistance associated with the use of ZOVIRAX Ointment 5% has not been observed, this possibility exists.

ADVERSE REACTIONS: Because ulcerated genital lesions are characteristically tender and sensitive to any contact or manipulation, patients may experience discomfort upon application of ointment. In the controlled clinical trials, mild pain (including transient burning and stinging) was reported by 103 (28.3%) of 364 patients treated with ZOVIRAX Ointment 5% and by 115 (31.1%) of 370 patients treated with placebo; treatment was discontinued in 2 of these patients. Other local reactions among acyclovir-treated patients included pruritus in 15 (4.1%), rash in 1 (0.3%) and vulvitis in 1 (0.3%). Among the placebo-treated patients, pruritus was reported by 17 (4.6%) and rash by 1 (0.3%).

In all studies, there was no significant difference between the drug and placebo group in the rate or type of reported adverse reactions.

SYMPTOMS AND TREATMENT OF OVERDOSAGE: Overdosage by topical application of ZOVIRAX Ointment 5% is unlikely because of limited transcutaneous absorption.

DOSAGE AND ADMINISTRATION: Apply ZOVIRAX Ointment 5% liberally to the affected area 4 to 6 times daily for up to 10 days. A sufficient quantity of ointment should be applied to adequately cover all lesions. A finger cot or rubber glove should be used while applying ZOVIRAX in order to prevent:

- (1) autoinoculation of other body sites or
- (2) transmission of infection to other persons.

Therapy should be initiated as early as possible following onset of signs and symptoms.

AVAILABILITY: ZOVIRAX Ointment 5% is available in tubes of 4 g and 15 g. Each gram contains 50 mg acyclovir in a polyethylene-glycol base. ZOVIRAX Ointment 5% is for topical administration.

Product Monograph available on request.

Reference:

1. Whitley RJ, Levin M, Barton N, et al: Infections caused by herpes simplex virus in the immunocompromised host: Natural history and topical acyclovir therapy. *J Infect Dis* 1984;150:323-329.

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WELLCOME MEDICAL DIVISION
BURROUGHS WELLCOME INC
KIRKLAND, QUE.

Endodontic Self-Assessment Quiz

CORRECT ANSWERS

1. **Correct Answer a) Ripping of the apical end of the canal**

EXPLANATION

In order to avoid violation of the periradicular tissues, one must adhere to the principle of confining cleaning and shaping procedures to the canal system. This maintains the spatial integrity of the apical foramen.

If this principle is not adhered to, foramina can be transported (moved) during excessive apical instrumentation. Transportation can be either external or internal. External transportation occurs when instrumentation is carried out beyond the apical dentin matrix, usually with a file which does not match the curvature of the original canal. This results in ripping, (tearing or zipping) or perforating the apical end of the canal.

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2. **Correct Answer b) The distal wall of the mesial canals of mandibular molars**

EXPLANATION

Although rotary intracanal instruments are the most efficient at cutting, they are also simultaneously the most dangerous. Certain anatomical areas are the most susceptible to excessive tooth removal due to the small dentin thickness between the canal wall and the periodontal ligament.

One must exhibit caution at any time while using such an instrument but the most susceptible of the above examples is the mesial root of lower molars. There is a tendency to tear through the distal wall of the root and perforate into the interradic-

ular area. All of a sudden hemorrhage is evident in a previously clean canal.

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3. **Correct Answer c) Palpation, thermal tests, percussion**

EXPLANATION

a), b) and d) all contain tests commonly referred to as "last resort" tests, i.e. tests which having been carried out preclude the administration of other tests or commit the patient to some degree of treatment before the diagnosis has been confirmed. The anesthetic test (i.e. the administration of local anesthetic to isolate the source of the patient's pain) and the test cavity (creating a preparation through enamel into dentine without local anesthetic when pulp necrosis is suspected) should be used only after all other tests and examination procedures have been exhausted without establishing a definite diagnosis and only as a "last resort".

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4. **Correct Answer a) Determine if the periapical inflammatory process has penetrated the cortical bone.**

EXPLANATION

The palpation test is performed by rolling the index finger over the mucosa approximating the apices of the teeth being tested. Sensitivity indicates that the inflammatory process(es) which started in the pulp, has penetrated through the cortical bone and is affecting the overlying mucoperiosteum. This test is quick and easy to perform, does not create discomfort for the patient and the effects are quickly reversible. The significance of a positive test are that with the cortical plate having been perforated, pressure is often easily dissipated in the soft tissue and post-treatment discomfort is minimized.

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5. **Correct Answer b) Determine whether there is vital tissue in the pulp.**

EXPLANATION

Electrical pulp testers provide misleadingly numerical data. Several studies have shown that there is no correlation between the readings obtained from an electrical pulp tester and the histological condition of the pulp. However, in adequately isolated teeth they do provide reliable evidence of vitality. This can be of considerable value in differential diagnosis especially of poorly localized pains and questionable radiolucencies. Since they are not totally consistent, other tests including thermal tests should be utilized in conjunction with electric pulp testers in order to arrive at a correct diagnosis.

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findings in the pulp. *Oral Surg., Oral Med., Oral Path.*, 16, 846-871, 1963.

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6. **Correct Answer b) Are the most frequently encountered periapical lesion.**

EXPLANATIONS

Roughly half of all periapical lesions are granulomas. Most periapical lesions respond to proper non-surgical treatment regardless of the type of lesions. There is a poor correlation between the size of a periapical lesion and its histopathology though there is a trend towards an increased incidence of cysts as lesions become larger. Periapical granulomas must be treated due to the danger of acute exacerbations leading to spreading infections and to probability of resorption as they expand. It is often difficult to detect large numbers of micro-organisms in periapical granulomas. They are basically chronic inflammatory responses to several possible irritants some of which may be microbial.

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7. **Correct Answer c) Clindamycin**

EXPLANATION

Most dental infections are caused by Streptococci and as such respond well to penicillin therapy. It is now believed that anaerobes such as bacteriodes FRAGILIS are the second most common cause for dental infections. As clindamycin is very effective in penicillin resistant anaerobic infections, it would be the drug of choice in such cases. However, balanced against this is the disadvantage that clindamycin has been associated with the potentially fatal pseudomembranous colitis.

References

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3. Goodman, L.S., and Gilman, A.G., et al., "The Pharmacological Basis of Therapeutics", 7th ed, pp. 1188-1190, 1980, MacMillan, New York.

8. **Correct Answer b) Anaerobic gram negative rods.**

EXPLANATION

According to Goldbergs obligate anaerobes are growing in importance in abscessed teeth because of (1) their regular isolation from infective foci, (2) their ability to produce pathogenic factors to sustain infections, and (3) their possible role in causing symptomatic pulps. These anaerobes are often resistant to penicillin and therefore do not respond well to traditional penicillin therapy.

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9. **Correct Answer c) Wash the tooth, implant it yourself and come directly to the office.**

EXPLANATIONS

Recent Scandinavian research in thousands of cases tells us the primary importance for success of replant cases is to maintain the integrity of the periodontal ligament. Hence, the success rate is highest if the tooth is replanted immediately (within 30 minutes after avulsion) with a minimum of handling.

Therefore the best option is for the parent to replant the tooth themselves which minimizes the time out of the mouth. Second choice would be to place the tooth in a glass of milk or even under the patient's tongue to maintain body pH and temperature — then have them come to your office where it can be replanted and splinted *immediately*. Caustic chemicals would immediately kill the periodontal ligament cells which would lead to ankylosis and subsequent failure.

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10. **Correct Answer b) Seven to ten days.**

EXPLANATION

Once again, the Scandinavian studies led by Andreasen show that if we leave splints on too long, as was the former recommendation, there is a increased tendency to ankylosis and future replacement resorption due to immobility.

It was found that after the tooth had attached and PDL fibers had healed and was reasonably stable, it was time to remove the splint at 7-10 days and put the tooth back into function. This produces the best result insofar as minimizing resorption.

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11. **Correct Answer e) Access made too far gingivally.**

EXPLANATION

Although it is not infrequent to make perforations during endodontic access in lower anterior teeth the most common error is to start the access too far gingivally on the lingual surface. Because most lower anterior roots are broad in a labio lingual dimension, the pulp also takes this shape resulting in a slit canal or two separate canals (one labial and one lingual).

If the access is made too far gingivally on the lingual surface (cingulum) the access enters the pulp chamber from an incorrect angle. This would lead one easily into the labial canal but render it very difficult or impossible to locate the lingual canal.

Therefore the access must start in the middle or one-third of the lingual surface and up far enough incisally and gingivally to include both the labial and lingual extension of the pulp horns. The outline of the access cavity is determined by the extent of the pulp horns.

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12. Correct Answer
d) Examine the bite-wing radiograph
Remove all caries
Determine the long axis of the roots

EXPLANATION

Access to the pulp chamber is directly related to the internal anatomy of the pulp space. The access is, in effect, a continuation of the pulp chamber onto the external surface of the tooth, thereby allowing relatively straight line access to the apical foramen. The pits and fissures have no bearing on the access form. Similarly, a measurement of the root length is not a prerequisite to access.

A bitewing radiograph is essential because the parallel angulation of a bitewing film provides a better view of the pulp chamber than a periapical film.

It is necessary to complete toilet of the cavity i.e. removal of caries, and defective restorations prior to attaining access or else leakage could be a problem between treatments.

A careful evaluation of the long axis and direction of the roots is critical to access preparation in order to locate all canals and eliminate the possibility of perforation.

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13. Correct Answer c) Seal all of the orifices of the root canal system

EXPLANATION

Studies have shown that Endodontic success and failure is primarily related to percolation of periapical exudate into incompletely filled canals. The primary objective of operative Endodontics is to develop a fluid-tight seal at the apical foramen and the total obliteration of the root canal space.

Two additional reasons for root canal obturation are the prevention of any micro-organisms that might be transported to the periapical tissue during a transient bacteremia from lodging in the unfilled portion of the root canal as well as the "bottling-up" of any pulpal debris and micro-organisms in the dentinal tubules and uncleaned portions of the canals.

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14. Correct Answer
b) Condense the filling material
Use an appropriate sealer
Pre-measure the gutta percha master cone

EXPLANATION

A suitable root canal cement should be used for filling the root canal in conjunction with a solid core material. In one sense, the actual root canal filling material is the cement itself. The setting property of the cement varies with the amount of moisture present. The dry canal may be obtained with absorbent points. It is imperative to dry the canal prior to obturation or the sealer is rendered inadequate.

The use of a semisolid or moldable cone of gutta percha without some manner of condensation leads to inadequate adaptation of the filling material to the walls of the prepared root canal. In addition, radiographs, tactile, and visual measurements of the cone also aid in the final three-dimensional obturation of the root space.

There is no recommended technique that advocates intentional over-filling of the root canal system.

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15. Correct Answer d) There is an uncontrolled painful accumulation of purulent or haemorrhagic exudate trapped within the cancellous bone.

EXPLANATION

In some instances, an acute collection of pus gathers under the periosteum within the cancellous bone and will not drain either via the root canal or soft tissue. In

these instances, pain is usually severe and it is necessary to artificially fistulate or trephine into the cancellous bony space to allow drainage and relief of pain. None of the other situations cited require as severe a form of treatment.

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16. Correct Answer e) The main reason for endodontic surgery is to improve upon the existing apical seal.

EXPLANATION

Historically, there were several reasons that were thought to be correct as indications for apical surgery. The size of the lesion is not necessarily an indication for surgery, although it may be if healing fails to occur. It has been shown that many cysts will heal by non-surgical therapy alone. Furthermore, it has been demonstrated that it is impossible to diagnose a cyst by clinical means alone.

It is not necessary to remove any specific amount of root during surgery — the only criteria is how much is required to attain access to the apical foramen in order to seal it.

Sinus tracts do not require any special treatment. Routine non surgical endodontic therapy should result in healing of a sinus tract. Only if it fails to heal after routine therapy, is surgery indicated.

Therefore, the main reason for surgery is to prevent apical percolation and leakage by improving the seal.

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17. Correct Answer
c) Establish draining via the root canal.

EXPLANATION

In any abscess, the primary surgical principle to adhere to is to establish drainage.

In most cases of cellulitis, the tissue is not conducive to incision or trephination so the easiest and most effective means is to drain via the root canal.

If drainage via the canal doesn't result or if a fever is present, then antibiotics are necessary secondarily as supportive therapy.

Hot mouth washes with a saline solution are effective but no heat should be applied to the outside of the face because it draws infection towards it, thereby increasing the swelling.

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18. Correct Answer e) Overinstrumentation Overmedication Forcing debris through apex

EXPLANATION

Overinstrumentation, overmedication and forcing debris through the apex are the most common causes of post endodontic flare-ups. Extreme care should be taken to determine and maintain proper working lengths.

An excess of intracanal caustic medications has been shown to have a high inflammatory potential and can do more harm than good. Medication should be kept to a minimum and kept away from the apical tissues.

Ultrasonic debridement of the root canal systems has been shown to cause no more post operative pain than other techniques.

Proper use of Gates-Glidden drills should not cause any periapical effects since they are utilized to enlarge coronal canal only.

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19. Correct Answer c) In increasing diameters from the narrowest through the widest possible in a passive manner.

EXPLANATION

Rotary instrumentation with Gates-Glidden burs can serve a useful purpose in shaping the middle and coronal portions of root canals *if used judiciously*. A gradual and "stepped-back" use from smaller sized to larger sized instruments is advocated to achieve a tapered funnel-shape to this portion of the canal. Since these instruments are not very flexible they should not be used in the apical portion of any canal, nor to negotiate curves that may be located further coronally. They are to be used in a passive manner because with the use of excessive force one runs the risk of canal perforation, canal ledging, blockage or fracturing of the instrument.

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20. Correct Answer d) A transient pulpitis may result causing sensitivity to thermal changes for a period of time.

EXPLANATION

Local anesthetics should not be used in vital bleaching procedures as treatment temperature depends on the patient's response. The technique involves the use of 30 percent H₂O₂ and thus precautions such as gloves for dentists, excellent rubber dam placement, and eye protection must be insured. A walking bleach is not practical for vital bleaching. Transient pulpitis is quite common and usually lasts for only 24 hours. Brown-yellow staining tends to respond better to bleaching procedures than grey which can be resistant to lightening. Δ

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Specialty Features

Dental health status and treatment needs of elderly residents of Edmonton, Alberta

I.M. Kuc, DDS

J.A. Hargreaves, LDS, MChD, AM, MRCD(C)

G.W. Thompson, DDS, PhD, FRCD(C)

E.A. Donald, PhD

T. Basu, BVSc, PhD

T.R. Overton, PhD

E.S. Chao, MSc, RP, Dt

R.D. Peterson, PhD

Edmonton, Alberta

ABSTRACT

The oral health of 140 independent elderly volunteers, selected from different sections of Edmonton, Alberta, was assessed in conjunction with their nutritional and medical status, in an attempt to evaluate the dental needs of this population. Dental caries was assessed using WHO standards and the CPITN was used in assessing periodontal and gingival health needs. The mean age of the participants was 70.9 $\pm$ 2.6 years. The average time since they had last seen a dentist was 3.0 $\pm$ 6.2 years. Twenty-six percent of the group were edentulous and wore full dentures. An evaluation of denture hygiene and retention showed that 53 per cent of all maxillary and 57 per cent of all mandibular appliances exhibited poor hygiene; 33 per cent and 54 per cent, respectively, had problems with retention and/or occlusion. Only 12 per cent of the group exhibited any sort of mucosal pathology, all of which was related to ill fitting dentures. The total population had a mean of 15.0 $\pm$ 11.1 teeth, only 0.5 of these were decayed, while 8.9 were restored. CPITN scores taken from a total of 511 sextants with standing teeth showed that 16 per cent of the group exhibited bleeding upon probing, 29 per cent had calculus, 13 per cent exhibited pocketing, while 3.6 per cent had deep pockets. Sixty-seven per cent of the population required dental treatment, none of whom needed emergency intervention. Over 49 per cent of the dentate population could benefit from prophylaxis; 16 per cent required more definitive periodontal treatment. Forty-five per cent of the denture population required treatment.

SOMMAIRE

Dans un effort pour évaluer les besoins dentaires de l'âge d'or, on a examiné l'état de santé bucco-dentaire, l'état de

santé en général et le régime alimentaire de 140 personnes âgées autonomes qu'on a choisies parmi des bénévoles de différentes parties de la ville d'Edmonton, en Alberta. On a évalué leurs caries en fonction des normes de l'OMS et on s'est servi de l'ICPBT pour évaluer leurs besoins touchant leur santé parodontale et gingivale. L'âge moyen des participants était 70,9 $\pm$ 2,6 ans et, en moyenne, ils n'avaient pas visité le dentiste depuis 3,0 $\pm$ 6,2 ans. Parmi eux, 26 pour cent étaient édentés et portaient des prothèses complètes. Un examen de la propreté et du degré de rétention des prothèses a révélé que 53 pour cent de toutes les prothèses maxillaires et 57 pour cent de toutes les prothèses mandibulaires dénotaient une pauvre hygiène, 33 pour cent et 54 pour cent respectivement avaient des problèmes de rétention ou d'occlusion. Seulement 12 pour cent des participants accusaient une pathologie à la muqueuse et, dans tous les cas, cette pathologie était reliée à des prothèses mal ajustées. Le groupe avait une moyenne de 15,0 $\pm$ 11,1 dents dont seulement 0,5 étaient cariées et 8,9 étaient restaurées. Les résultats de l'ICPBT obtenus à partir de 511 sextants sur des dents permanentes a révélé que 16 pour cent des participants ont eu des saignements au sondage, 29 pour cent avaient du tartre, 13 pour cent des culs-de-sac et 3,6 pour cent des culs-de-sac profonds. 65 pour cent d'entre eux avaient besoin de traitements, mais aucun traitement n'était urgent. Plus de 49 pour cent des gens avec des dents auraient eu avantage à obtenir des soins prophylactiques, 16 pour cent avaient besoin de traitements parodontaux plus permanents. Enfin, 45 pour cent des personnes avec des problèmes avaient besoin de traitements.

Introduction

Elderly individuals represent an increasing proportion of the gen-

eral population in industrialized countries. In Canada, the number of elderly over the age of 65 years is expected to reach 3.2 million by 1991,¹ and in Alberta, the number is expected to double from 201,000 to 472,000 over the next three decades.² The increase in life expectancy will lead to an increased need for dental health services.

There is a need for epidemiologic studies regarding the oral health status of the elderly. A recent study on the "Future of Dental Health Care in Alberta" over the next quarter century³ stressed the importance of a comprehensive survey on the oral health status of seniors as a means of establishing a data base for program planning. Also, it is necessary to ascertain whether or not conditions evident in the elderly are on the rise or part of a cohort phenomenon.⁴

A number of studies have examined the oral status of the institutionalized elderly in Canada;⁵⁻⁷ but few have looked at the dental health of the individuals still capable of living on their own, often referred to as the independent elderly.^{8,9} The present investigation was undertaken to examine the oral health of a group of independent elderly residents in Edmonton, Alberta. The study was carried out in conjunction with an assessment of their medical and nutritional status, the findings of which will be presented elsewhere.

Materials and Methods

Two hundred elderly people were identified from the records of the Society for the Retired and Semi-Retired and from the records of residents on the North and South sides of Edmonton, made available through the Medical Officer of Health. Selection criteria included good medical health, an independent lifestyle and age over 65 years. No vagrants or elderly people using inner city shelters were included. Of the 200 identified, 140 volunteered to participate in the study.

Prior to examination, each participant was interviewed by one of three calibrated

dentists. The participant's medical status, dental history and home care habits were ascertained with a standardized questionnaire. Patients were screened prior to dental examination for the presence of infectious diseases and/or any medical conditions that would contravene dental manipulations. As well, an examination of the current economic status of the group and level of education received were noted.

Subsequent to the interview, oral examinations were carried out using specific criteria to assess dental caries, periodontal and gingival status, denture status and treatment needs. The majority of examinations were conducted by one dentist (IMK) at the participant's home or in the community centre, using a portable intra-oral fiber optic light unit, a front-surface mirror, #5 explorer and a World Health Organization (WHO) probe.¹⁰ No radiographs were taken.

Dental caries was assessed using 1986 WHO standards;¹¹ each tooth was examined using visual-tactile criteria and scored as sound, decayed (root, primary or secondary decay), filled or crowned. Each tooth was then described according to treatment requirements; requirements being a restoration (one, two, three, or more surfaces), a crown, or extraction.

Periodontal and gingival health was assessed using the Community Periodontal Index of Treatment Needs (CPITN).¹² Dividing the dentition into sextants (each sextant containing at least two teeth), scores were given according to the worst finding in the area. Findings were ranked into the following categories: no sign of disease, gingival bleeding upon gentle probing, supra or subgingival calculus, pathologic pockets 4 or 5 mm deep, or pathologic pockets 6 mm or deeper.

Removable prostheses were examined and categorized as to the type of appliance. Their overall general condition was then assessed, noting defects such as broken flanges or loss of the denture base, broken clasps, missing or fractured teeth and the presence of home relines. Appliance hygiene was assessed visually by examining the occlusal and alveolar surfaces for debris and then with an explorer to determine the presence of adherent material. Stability was assessed by examining each appliance for horizontal displacement and/or rocking under light digital pressure.¹³ Retention was deemed satisfactory if the dentures remained in place during moderate opening of the mouth.¹⁴ Occlusion was deemed satisfactory if no denture displacement was noted on gentle closing. A

TABLE I

Distribution of Decayed, Missing and Filled Teeth

	Mean Number of Teeth per Subject
Total number of teeth	15.04 ($\pm$ 11.06)
Teeth in maxillary arch	8.47 ($\pm$ 5.75)
Teeth in mandibular arch	6.56 ($\pm$ 5.96)
Decayed teeth	0.49 ($\pm$ 0.95)
Teeth with root caries	0.08 ($\pm$ 0.32)
Filled teeth	6.83 ($\pm$ 6.46)
Root-filled teeth	1.27 ($\pm$ 2.82)
Crowned teeth	2.11 ($\pm$ 3.28)

satisfactory score was necessary in each of the categories (stability, retention and occlusion) in order for the denture to be considered acceptable.

Mucosal pathologies, related to dentures, were also assessed. Mucosae were examined for the presence of inflammatory hyperplasia, traumatic ulcers, denture stomatitis and angular cheilitis.

Based upon the clinical findings, participants were grouped into one of four treatment categories:

- 1) No treatment required.
- 2) Requiring treatment that could be delayed. This category included patients with incipient carious lesions, mild gingivitis, or patients with prostheses which required minor denture adjustments.
- 3) Requiring immediate treatment.
- 4) Requiring emergency treatment, i.e. patients who were in pain at the time of examination.

When treatment was required, the type of treatment was subdivided into the following categories; prophylaxis only, definitive periodontal treatment, restorative treatment, surgery, fixed or removable prosthodontics, or endodontics.

Results

Sixty-three of the participants were males and 77 were females. Their mean age was 70.9 $\pm$ 2.6 years. An examination of their current economic status showed that 29.3 per cent had incomes of less than \$20,000.00 per year, 34.8 per cent had incomes between \$20,000.00 and \$30,000.00 per year and 35.9 per cent had incomes above \$30,000.00 per year. An examination of education levels indicated that 38.3 per cent had obtained education up to the elementary or high school level, while 35.1 per cent had education of the university or professional school level.

One hundred and twenty-six of the group were under the care of a dentist, the mean time since their last appointment was 2.98 ($\pm$ 6.24) years. Fourteen were under the care of a denturist, the mean time since their last appointment was 3.87 ($\pm$ 8.40) years. A further breakdown of the data showed that 53.6 per cent of the total 140 participants had been seen within the last six months by a dentist or denturist. Only 9.3 per cent had not been seen for five or more years; these patients were wearing complete dentures.

The distribution of decayed, missing and filled teeth is shown in Table I. The average number of teeth per patient is 15.04 ($\pm$ 11.06); however, out of 104 dentate patients, the average number is 20.2 ($\pm$ 7.5). Of the total number of restored teeth, 3.7 per cent had secondary decay; 48.1 per cent of all persons had root caries or root fillings.

A total 511 sextants with standing teeth were examined by the CPITN method. The results are shown in Table II. As indicated, calculus and shallow pockets were the most frequently observed problem, seen in 55.8 per cent of all persons and in 41.7 per cent of all sextants. Deep pockets of 6 mm or more were found in only 12.5 per cent of all persons or 3.6 per cent of all sextants; 38.2 per cent of the sextants, or 15.4 per cent of the group, were disease free.

The distribution of subjects with removable prostheses was broken down into subgroups (Fig. 1); 36.9 per cent of the total population studied wore no denture. The next largest category — those who were edentulous in one or more jaws, accounting for 43.6 per cent of the sample. Of this group 25.9 per cent were edentulous in both arches, 17.0 per cent were edentulous in the maxilla and 0.7 per cent were edentulous in the mandible. The remaining 19.5 per cent of the group wore either a partial maxillary or partial mandibular denture.

An assessment of the stability, retention and occlusion of each prosthesis (Fig. 2) showed that 33.3 per cent of all maxillary appliances were unsatisfactory, while 53.8 per cent of all mandibular appliances were problematic. An evaluation of denture hygiene (Fig. 2) clearly demonstrated that poor hygiene was a significant problem; 56.9 per cent of all mandibular dentures retained plaque and debris on either their occlusal and/or alveolar surfaces, while the problem was evident in 52.6 per cent of all maxillary dentures.

Examination of home care habits showed that patients brushed their teeth

and/or attended to their dentures on the average 1.96 (+/- 0.92) times per day. Forty-eight per cent of the dentate population flossed their teeth regularly.

None of the participants were found to exhibit any soft tissue aberrations requiring a biopsy or additional investigation. However, an examination of mucosal pathologies related to denture wearing showed that denture stomatitis occurred in 11.5 per cent of patients with a maxillary appliance and in 7.7 per cent of those wearing a mandibular denture. Angular cheilitis was observed in 1.5 per cent of the denture wearers, with traumatic ulcers observed in an additional 1.5 per cent of the population with mandibular appliances.

Dividing the population into treatment categories, 32.9 per cent of the group required no treatment, while the remaining 67.1 per cent were advised to see a dentist (Fig. 3). Of those requiring treatment, only 22.1 per cent were in need of immediate care; none of the participants were in pain or discomfort at the time of examination and therefore did not require emergency treatment. A breakdown of the types of treatment required in the dentate population is shown in Fig. 4. Further examination of treatment needs as they relate to the wearing of dentures

shows that 45 per cent of this population are in need of either a new denture or a reline/repair to their existing appliance.

Discussion

In the province of Alberta, dental care is subsidized at approximately 65 per cent of the fee guide for persons over the age of 65, yet recent data indicate that only

38 per cent of those eligible take advantage of the service.¹⁵ The reasons for failing to seek regular dental care are complex: they include differences between perceived and real need, lack of mobility and accessibility to care, fear and high cost.¹⁶ A general trend however, appears to be that the younger, more independent elderly have the highest rates of dental

Figure 1

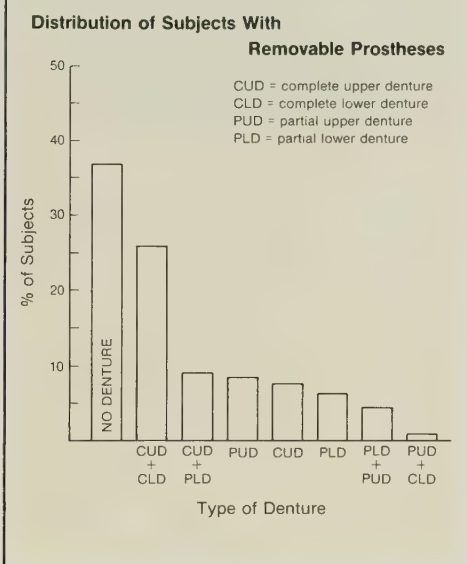


Figure 2

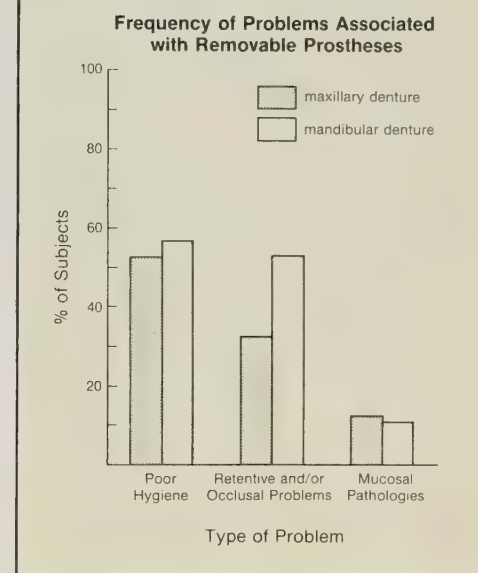


TABLE II

Community Periodontal Index of Treatment Needs (CPITN)

	% of Sextants						
	Maxillary Right (17-14)	Maxillary Central (13-23)	Maxillary Left (24-27)	Mandibular Left (37-34)	Mandibular Central (33-43)	Mandibular Right (44-47)	Composite Score %
Number of sextants	79	78	76	91	99	88	511
No sign of disease	40.5	48.7	43.4	32.9	27.3	36.4	38.2
Gingival bleeding after gentle probing	17.7	25.6	11.8	16.5	11.1	15.9	16.4
Supra or subgingival calculus	22.8	17.9	22.4	28.6	55.5	26.1	28.9
Pathological pockets 4-5 mm deep	13.9	7.7	14.5	18.7	4.0	18.2	12.8
Pathological pockets 6 or more mm in depth	5.1	0	7.9	3.3	2.0	3.4	3.6
Mean number of sextants with;							
N	0	1 + 2 + 3 + 4	2 + 3 + 4	3 + 4	4		
	No periodontal disease	Bleeding or higher score	Calculus or higher score	Shallow pockets or higher score	Deep pockets		
511	2.25	3.75	2.77	0.97	0.21		
Percentage of persons who have as their highest score;							
N	0	1	2	3	4		
	No periodontal disease	Bleeding only	Calculus	Shallow pockets	Deep pockets		
140	15.4	16.3	30.8	25.0	12.5		

visits, while those 85 years and older tend to have a lower level of education and hence fail to recognize the need for routine dental care.^{17,18} The population involved in our survey falls into the first category in that 53.6 per cent of the group, whose mean age was 70.9 years, had sought treatment in the last six months. As well, an examination of education levels indicates that over one-third of the group had obtained post-secondary training. These results further support the notion that the younger, better educated the group, the greater the value placed on oral health and preventive dental care as reflected by higher levels of self-esteem.¹⁹

The rate of edentulism has often been used as an indicator of dental health, particularly in older populations. Leake and Otchere²⁰ recently examined edentulism rates of the elderly residing in Ontario over the last 10 years. Their review of the literature indicates that amongst the independent elderly, a significant decline in edentulism has occurred, from about 66 per cent in 1972 to 25-30 per cent in 1983 to 1985. Our results, in which 26 per cent of the independent elderly were edentulous, correlates with their findings. The prevalence of edentulism in the United States has also shown a decline in recent years,^{21,22} although rates reported in Europe remain high, ranging from 50 to 80 per cent.^{23,24}

While the rates of edentulism have declined, the need for prosthetic treatment remains high. More than half of all mandibular appliances and approximately one-third of maxillary appliances examined required some form of treatment as judged by the examiners. Moreover, the perceived need for treatment was far lower than actual need; the discrepancy between examiner and patient judgement is in accordance with other studies.²⁴⁻²⁶ Studies have shown that the older the denture, the less likely the patient is in seeking regular care.¹⁸ The patients who had not seen a dentist during the past 5 years were all complete denture wearers and this is a group which requires treatment, but are unaware of their needs. Equating perceived need with actual need is a universal problem.

A decline in edentulism shifts possible dental health risks to periodontitis and caries. Periodontal disease is reported as being high in the elderly and is increasing in prevalence and severity.²⁷ Yet, contrary to what was previously believed, recent epidemiological studies suggest that periodontitis in the North American population as a whole is on the decrease, with progression of the disease, particu-

Figure 3

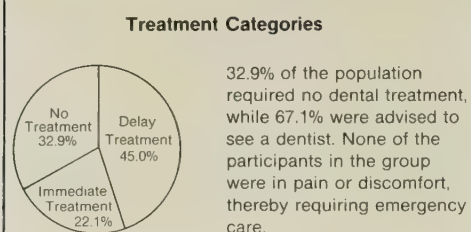
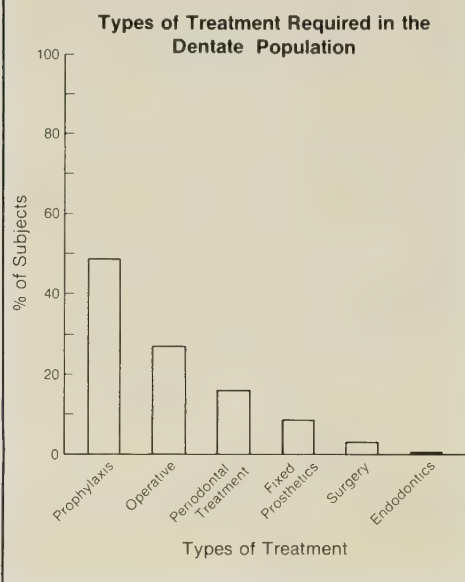


Figure 4



larly in the elderly, much slower and less frequent than previously supposed.^{28,29} Lesions in the elderly may be reflecting an accumulation of lesions over time, rather than being representative of an active, progressive disease process. As a result, while mild forms of gingivitis and mild periodontal pocketing may affect a large portion of the population, serious disease is found in a much smaller proportion of the group. While 61.7 per cent of our group required some type of treatment, only 3.6 per cent of the population needed complex periodontal care. The implications regarding planning of preventive and treatment programs for the elderly are significant.

A modest rise in DF scores has been observed in elderly populations during the last decade. This increase can be attributed to a greater number of retained teeth and an increase in the utilization of dental services rather than a true increase in the rate of caries.³⁰ Our group had a low caries rate. Out of a total 2,105 teeth examined, only 3.3 per cent were decayed, 2.2 per cent of which were secondary decay and 59.9 per cent of all teeth examined were restored.

The nature of caries in adult populations has also been seen as changing from primary to secondary decay.³¹⁻³³ An increased rate of marginal breakdown and failure of restorative materials and/or fractures of teeth associated with restorations are thought to be the cause. Rates of 15-16.2 per cent for secondary decay have been reported for adult groups, compared with 2-8 per cent for primary caries. While the rates of decay are less in our sample, the increased proportion of secondary caries is still evident. With a continued improvement in restorative materials and fewer restored teeth, the trend should subside over the next few decades.

Root surface caries has also been reported as increasing in number with an increase in age.³⁴ However, a lack of uniform recording methods and the diversity of populations examined in various studies has confused these results. Banting³⁵ found a correlation between age and root caries prevalence, while Wallace³⁶ found no such correlation, although 69.7 per cent of the population which he examined had root caries.

Examination of our group was carried out to determine the presence or absence of root surface caries or fillings. The association of the lesions with periodontal disease, gingival recession and remaining number of teeth was not analyzed and therefore comparisons with previous studies cannot be done.³⁷ Of the 48.1 per cent of persons in our group with either a carious or filled root surface, only 0.38 per cent of the total number of teeth examined had root caries, while 8.01 per cent of the teeth contained root fillings.

An examination of treatment requirements indicates that poor oral hygiene, both in relationship to a prosthesis and remaining natural teeth, is one of the major problems facing the elderly, based on the findings of our groups. While the remaining problems were minor, with little evidence for complex and extensive treatment, the results still demonstrate the need for continual dental care and education for the elderly.

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Dr. Kuc is a graduate Ph.D. student in Oral Biology at the University of Alberta.

Dr. Hargreaves is Professor and Director of Graduate Studies and Research, Faculty of Dentistry, The University of Alberta, Edmonton, Alta. T6G 2N8.

Dr. Thompson is Professor and Chairman, Division of Community Dentistry, Faculty of Dentistry, The University of Alberta.

Dr. Donald is Professor Emeritus, Department of Foods and Nutrition, Faculty of Home Economics, The University of Alberta.

Dr. Basu is Professor, Department of Foods and Nutrition, Faculty of Home Economics, The University of Alberta.

Dr. Overton is Professor, Department of Applied Sciences in Medicine, Faculty of Medicine, The University of Alberta.

Ms. Chao is Nutrition Scientist, Kellogg's Canada.

Dr. Peterson is Director of Scientific and Consumer Affairs, Kellogg's Canada.

Reprint requests to Dr. Hargreaves.

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Occlusal Adjustment

by
R.D. Oles, DDS, MS
College of Dentistry
University of Saskatchewan
Saskatoon, Saskatchewan
S7K 2V5

ABSTRACT

Occlusal adjustment is a misunderstood and underutilized procedure that is often indicated in the management of occlusion-related disorders.

To clarify the confusion extant about occlusal adjustment and to encourage its use, when appropriate, this paper examines optimal, normal and abnormal occlusions, classifies abnormal occlusions according to morphological and functional characteristics and treatment needs, and presents a rationale for occlusal adjustment based on these concepts. Differences between occlusal adjustment, occlusal equilibration and selective grinding are discussed, occlusal interferences are defined and described and the indications and contraindications for occlusal adjustment are presented.

SOMMAIRE

Le réglage de l'occlusion est une procédure mal comprise et peu utilisée qui est souvent indiquée dans la gestion des désordres liés à l'occlusion.

Afin d'éliminer toute confusion touchant cette technique et d'en promouvoir l'application quand il y a lieu, on examine ici les occlusions optimales, normales et anormales, on classifie ces dernières suivant leurs caractéristiques morphologiques, leurs caractéristiques fonctionnelles et les traitements qui leur sont nécessaires, et on présente des raisons justifiant le réglage de l'occlusion en fonction de ces principes. Par ailleurs, on discute les différences entre le réglage de l'occlusion, son équilibration et le meulage sélectif, on définit et on décrit les interférences occlusales et on présente les indications et les contre-indications pour le réglage de l'occlusion.

Introduction

Occlusal adjustment is the least used and most misunderstood of the treatments available for managing occlusion-related disorders (ORDs). This is because of confusion about its nature

and vagueness about its objectives and limited application.

In order to clarify the situation, this paper will present a rationale for an occlusal adjustment technique; describe the specific type of occlusion that is amenable to treatment by occlusal adjustment; differentiate between occlusal adjustment, occlusal equilibration and selective grinding; and define and discuss occlusal interferences. The reader can refer to other works for detailed descriptions of occlusal adjustment technique.^{1,2,3,4}

A Rationale for Occlusal Adjustment

An approach to occlusal adjustment advocated by Ramfjord and Ash^{2,3} and other clinicians is based on two papers by Beyron⁵ that described the occlusal characteristics of healthy, functioning dentitions.

In a longitudinal study of 44 Europeans, occlusions that allowed multidirectional gliding movements showed the most desirable occlusal wear patterns after observation periods of eight to 12 years. In these occlusions, all teeth showed wear, more contact in excursions and an enlarged occlusal table. There was also a uniform decrease in gliding path steepness. It was concluded that even tooth wear in individuals with multidirectional gliding movements resulted in decreased anterior overbite and reduction in cusp angulation, and concomitant axially directed occlusal forces. The reduced anterior and posterior overbite produced contacts that allowed smooth, easy gliding movements as opposed to restricted movements associated with "snugly interlocking bicuspid and steep facets."⁵

In an analysis of the occlusal characteristics of 46 Australian Aborigines with functionally effective dentitions, several features were noted. There were multiple bilateral posterior tooth contacts in maximum intercuspation. In lateral excursions, tooth guidance was on the laterotrusive (working) side, there was no mediotrusive (balancing) contact when the mandible was in the position of maximal laterotrusive contact, and there was

posterior group function. The mandible was, on average, 1.15 mm. anteriorly displaced from terminal hinge position to maximum intercuspation. There was a slight anterior overbite and overjet present with no contact of anterior teeth in maximum intercuspation or, in older subjects, only canine contact. With increasing age, there was progressive wear of all teeth, a decrease in anterior overbite and, one presumes, a decrease in posterior overbite. Although extensive occlusal and interproximal attrition was noted in all subjects, only one did not show a well-defined, stable position of maximum intercuspation.⁶

These observed attributes of clinically healthy occlusions led to the Beyron/Ramfjord and Ash concept of optimal occlusion.^{3,7,8}

Some requirements for optimal occlusion are:

1. Multiple, bilateral stable posterior contacts in retruded position and in maximum intercuspation with a smooth, horizontal tooth-directed slide between the two positions.
2. Lateral guidance on the laterotrusive side with no mediotrusive contacts.
3. A small but definite anterior overbite and overjet and either no contact or light contact between incisors in maximum intercuspation.
4. Multidirectional freedom for mandibular movements with even functional effectiveness and wear resistance.
5. Occlusal force direction and distribution that ensure tooth position stability.

Optimal occlusion is thought to facilitate efficient functional activity.⁷ Because no interfering or obstructing tooth contacts are present, there is no need for adaptive motor behavior and the occlusion will likely be healthy, functioning, comfortable and stable.³ Optimal occlusion, however, occurs only when artificially created and normal occlusion is the more commonly observed healthy clinical state.³

A normal occlusion is morphologically and functionally acceptable. It has Angle Class I molar and canine occlusal relationships with supporting cusps of posterior

teeth contacting along the central sulci and marginal ridges of opposing teeth, a small amount of anterior overbite and overjet and a somewhat flat occlusal plane with small curves of Spee and Wilson. Interferences to mandibular movements and stabilization are present but the individual adapts to and tolerates them. Function is satisfactory and there is no evidence of an ORD. With adequate function and no pathosis, treatment is not needed.³

Three types of occlusion are neither optimal nor normal. These abnormal occlusions differ with respect to morphological configuration, functional suitability, presence or absence of pathosis, need for treatment and type of treatment indicated. They are categorized as Type A, Type B and Type C abnormal occlusions.

A Type A abnormal occlusion is a morphological malocclusion that deviates significantly from the Angle Class I configuration. Occlusal interferences are present, but the individual adapts to them, functions well and shows no evidence of an ORD. With this morphological malocclusion cum functional occlusion, treatment should be done only for aesthetic reasons.

A Type B abnormal occlusion is also a morphological malocclusion that either differs notably from the Angle Class I configuration, has been severely mutilated by wear with loss of vertical dimension, has multiple missing teeth with subsequent migration of adjacent or opposing teeth, or has inadequate posterior occlusal support. The individual is unable to adapt to the occlusal abnormalities and either cannot function adequately or has occlusion-generated pathosis present. Treatment is indicated, but, because of the abnormal occlusal configuration, it must be directed at correcting the underlying morphological deformity. Treatment will be complex and may involve appliance orthodontics, orthognathic surgery or restorative and prosthetic dentistry. Occlusal adjustment is not the treatment of choice for the Type B abnormal occlusion which is a morphological and functional malocclusion.

The Type C abnormal occlusion differs in that interarch and intra-arch tooth alignment and vertical dimension of occlusion is acceptable, but occlusal interferences within the morphologically normal occlusion cause abnormal and unsatisfactory function or pathosis. Treatment is indicated and the treatment of choice is occlusal adjustment. The objective of treatment is to remove occlusal interferences, transform the Type C abnormal occlusion into a normal

occlusion and induce healthy function. A Type C abnormal occlusion is a morphologically normal functional malocclusion.

Occlusal Adjustment

Definition

There is confusion about the differences between occlusal adjustment, occlusal equilibration and selective grinding.

Occlusal adjustment is the process of removing occlusal interferences from a Type C abnormal occlusion, imparting to it characteristics of optimal occlusion and changing it into a normal occlusion. Although the goal of occlusal adjustment is to remove all interferences, a more realistic objective is to reduce the number and alter the nature of interferences to within the range of patient adaptability. There is no attempt to produce any particular type of occlusal scheme other than one that is interference-free. The closer the pretreatment state is to an Angle Class I occlusion, the lesser the amount of tooth structure removal needed to introduce optimal occlusion characteristics. The greater the deviation from morphological normality, the more the teeth must be altered to eliminate interferences, the less suitable the case for treatment by occlusal adjustment, and the less stable the treatment result. After occlusal adjustment, maximum intercuspation position will be slightly anterior to the retruded position and at the same horizontal level (long centric).^{1,3,9}

The objective of occlusal equilibration is to produce a specific occlusal scheme. A typical treatment outcome would have terminal hinge occlusal contact coinciding with maximum intercuspation occlusal contact in the frontal plane, cusp-fossa contact relationships of posterior teeth and bilateral canine guidance so that anterior or lateral movement causes disclusion of all teeth but the canines.¹⁰ Placing maximum intercuspation in the retruded position (point centric),¹¹ whether by occlusal equilibration or by restorations, is inconsistent with both natural and optimal occlusion, causes increased levels of muscle activity¹² and puts the patient in a strained, forced posture.¹³ Whether one agrees with the procedure and its objectives, clearly the occlusion to be altered must also be close to the Angle Class I arrangement.

Selective grinding is reshaping one or more teeth with the limited objective of reducing specific undesirable occlusal contacts. Selective grinding might be done to remove deflective contacts on new restorations or to eliminate localized interferences to simulate some conditions of optimal occlusion. A patient who

presents with an anterior open bite, no anterior guidance and traumatic balancing side molar contacts cannot have interferences eliminated by occlusal adjustment, but selective grinding of involved teeth may reduce trauma and allow more comfortable function. Selective grinding can be done on Type B and C abnormal occlusions, but with the caveat that it has limited ability to correct problems and that it is partial treatment in both instances.

Occlusal Interferences

An occlusal interference is a contact between maxillary and mandibular teeth that interferes with or precludes smooth, gliding movements of the mandible across the maxillae,^{3,14} or that interferes with or precludes occlusal stabilization of the mandible against the maxillae during swallowing.

Centric relation prematurities are found in about 90 per cent of dentulous patients¹⁵ and balancing side contacts were present in 9 per cent to 25 per cent, depending on the extent of lateral movement, of a group of 80 adults with a mean age of 22 years.¹⁶ These common morphological interferences are not functional interferences unless they are contributing to the development and perpetuation of abnormal masticatory system activity.

A centric relation prematurity (CRP) is an unstable premature contact on an inclined plane in centric relation occlusion (CRO).¹⁴ A slide-in-centric is the clinical manifestation of a CRP; when the mandible is placed in CRO with the teeth lightly touching and the patient is asked to "squeeze" the teeth together, the mandibular teeth will slide anteriorly, vertically and, perhaps, laterally from CRO to centric occlusion (CO).¹⁴ A symmetrical, straightforward, largely horizontal slide is thought to reduce unbalanced muscle activity and lessen the likelihood of traumatic effects on the temporomandibular joints and associated structures.^{7,15,17,18} CRPs can be significant in two ways: asymmetrical mandibular elevator activity needed to stabilize the mandible and allow tongue movements and hyoid/laryngeal elevation during swallowing can produce signs and symptoms of muscle hyperactivity and fatigue;¹⁵ CRPs and a stress overlay may produce parafunctional activity in the retrusive range between CO and CRO with resultant adverse effects on oral and perioral soft and hard tissues.^{17,19} When CRPs are removed, the point of tooth contact in CRO is brought to the same vertical level as the point of contact in CO.¹ With contact on a flat seat at the same vertical level, occlusal forces are directed along

or near the long axes of the teeth and minimal symmetrical muscle activity is required for mandibular stabilization. Elimination of the CRP and the vertical and lateral components of the slide-in-centric, and ensuring that bilateral, simultaneous, even posterior contacts occur in CO, CRO and between the two positions (long centric), simulates optimal occlusion. Stable occlusal contacts throughout the retrusive range allow for the effect of posture on mandibular closing movements. In a supine position, as when sleeping, occlusal contact during swallowing will approach CRO, while when upright, contacts will be at or near CO.²⁰ Occlusal mandibular stabilization is more desirable than mandibular muscular stabilization,¹⁵ and should be possible throughout the retrusive range.^{7,20}

A balancing or mediotrusive interference is a contact between maxillary and mandibular teeth on the side away from which the mandible moves. Although some authors believe that a balancing side contact must cause working side disclusion to be an interference,²¹ studies of muscle activity^{17,19,22,23} and tooth mobility change following occlusal adjustment²⁴ suggest that any balancing side contact may be an interference and, if occlusal adjustment is done, should be removed. In the properly selected Type C abnormal occlusion with desirable anterior relationships and working side guidance, balancing side contacts easily can be removed. In a Type B occlusion, particularly where there are tendencies toward anterior open bite, anterior cross bite or excessive anterior overjet, selective grinding can lessen contacts but not eliminate them. Balancing interferences can alter functional mandibular movement paths and provoke parafunctional activity,^{25,26} and, with centric prematurities, have been linked with mandibular dysfunction.^{19,27,28,29} Elimination of balancing interferences by reducing tooth structure between centric stops and supporting cusps on posterior teeth¹⁴ is consistent with optimal occlusion.

Working and protrusive interferences (anterior and posterior) are contacts between maxillary and mandibular teeth anterior and lateral to CO that interfere with or preclude smooth mandibular movement. While CRPs and balancing contacts are, by definition, morphological interferences, some working and protrusive guidance is desirable and other criteria must be considered when evaluating their nature.¹⁴ As the mandible moves through the various excursions, an interference may cause jerky, irregular

or restricted movements of the mandible, palpable tactile fremitus* as teeth collide and scrape against one another, stress mobility** of maxillary teeth, and pain of muscular or joint structures elicited by forceful contacts of the teeth.^{14,30} Elimination of working side interferences by grinding between centric stops and non-supporting cusp tips so that smooth mandibular movements are possible and stress mobility is eliminated allows the multidirectional freedom for mandibular movements seen in optimal occlusion. Working and protrusive interferences should be reshaped only to allow unrestricted mandibular movement; it is neither desirable nor necessary to grind teeth extensively to produce any specific morphological relationship.¹⁸

Occlusal interferences can cause ORDs by affecting mandibular elevator muscle activity during attempts to stabilize the mandible against the maxillae during swallowing, by causing muscle avoidance activity during chewing and by, in the presence of stress, participating in repetitive parafunctional activity.^{17,31,32} Prevention and elimination of occlusal interferences can produce the normal or quasi-normal occlusion that is consistent with health and function.

* Tremulous vibration of the mandible that is palpated during mandibular excursions.

** Palpable tooth mobility caused by contacts with opposing teeth during mandibular excursions.

Indications for Occlusal Adjustment

There are four indications for occlusal adjustment: traumatic occlusion; functional problems related to chewing and swallowing; a need to establish desirable baseline occlusal relationships before extensive restorative and prosthetic procedures, and a need to stabilize treatment results or correct problems resulting from previous treatment.^{3,18,33}

Traumatic occlusion is functional or parafunctional occlusal activity that has deleterious effects on one or more of the target organs of the stomatognathic system. Target organs are the temporomandibular joints and associated structures, the muscles of mastication, the lining tissues of the mouth, the crowns, pulps and roots of the teeth, the periodontium, and the central and peripheral nervous systems. Involvement of the target organs can have varied clinical manifestations: pain, noises or altered function of the temporomandibular joints; discomfort, pain or uncoordinated activity of the masticatory muscles; accidental tongue, cheek or lip biting related to uncoordi-

nated muscle activity; attrition, faceting or fracture of tooth crowns; pulpal pathology manifesting as thermal hypersensitivity, pain or devitalization; widened periodontal ligaments and associated tooth mobility and, in the presence of pre-existing periodontitis, possibly localized severe patterns of bone loss; and stimulation of peripheral nociceptors causing peripheral pain and an adverse effect on central nervous system controls of muscle activity and mandibular movement.^{3,14,28,34,35,36}

Several activities produce traumatic occlusion. Repetitive parafunctional tooth contacts (clenching, gnashing, grinding) associated with a combination of occlusal interferences and stress can adversely affect any of the target organs.^{17,19,31} Newly introduced occlusal interferences may provoke altered masticatory movement paths that result in muscle hyperactivity and discomfort, asymmetrical muscle activity or accidental soft tissue trauma.^{26,37,38} Loss of many posterior cusped teeth may cause the mandible to be carried forward to anterior contact in swallowing and chewing; the need for muscular stabilization of the mandible, instead of the more desirable occlusal stabilization, can result in abnormal and excessive muscle activity, muscle pain or discomfort and heavy occlusal forces directed against anterior teeth. This anterior positioning of the mandible for chewing and stabilization may cause abnormal stress on temporomandibular joint elements with subsequent damage, pain or altered function.^{3,39}

With reference to tooth mobility, periodontists describe primary and secondary traumatic occlusion.⁴⁰ Mobility associated with normal periodontal support and excessive occlusal force is primary traumatic occlusion; mobility found in the presence of reduced periodontal support and, presumably, normal occlusal forces is secondary traumatic occlusion.^{3,40} The author's experience is that, when secondary traumatic occlusion is diagnosed, primary traumatic occlusion is usually present. Treatment implications make the distinction important. Significant mobility due to secondary traumatic occlusion is managed by splinting mobile teeth, while that related to primary traumatic occlusion requires occlusal therapy.

Occlusal interferences may lead to abnormal function that can be improved by occlusal adjustment. Centric prematurities and the lack of stable, tooth-produced mandibular stabilization during swallowing can cause tooth-apart swallows and associated muscular discomfort that can be eliminated by removing

offending interferences, and unilateral chewing patterns associated with occlusal interferences can be made bilateral by removing the involved interferences.^{3,17,18}

If extensive occlusal alteration is planned with restorative or prosthetic procedures; it is advisable to eliminate occlusal interferences that are present, stabilize posterior centric relationships, introduce the elements of optimal occlusion and ensure sound muscle and joint function.^{3,18} When the altered occlusion has proved to be healthy and functioning, it should be duplicated in the restorations or prostheses. The result of no pretreatment occlusal adjustment may be the introduction of new interferences and dysfunction or other pathosis after treatment.⁴¹

When treatments create occlusal interferences, occlusal adjustment can be done to stabilize occlusal results or eliminate post-treatment signs and symptoms. An undesirable sequel of restorative dentistry is the rapid onset of muscle pain because of newly introduced occlusal interferences;^{26,37,38} removal of occlusal interferences is the treatment of choice in this situation. The use of extremely hard wear-resistant restorative materials may make pathologic occlusal interferences a late sequel to treatment because of differential attrition rates between natural teeth and restorations.⁴²

Occlusal adjustment should also be considered following orthodontic therapy to introduce occlusal characteristics that will ensure that the post-treatment morphologically normal occlusion is also functionally normal.

Contradictions to Occlusal Adjustment

The foremost contraindication to occlusal adjustment is the lack of a valid indication. An occlusion that is healthy, comfortable and functioning, and for which no restorative or prosthetic treatment is planned, is not a candidate for occlusal therapy. In the author's opinion, the presence of occlusal interferences, alone, is not an indication for occlusal adjustment, although Kirveskari, et al,⁴³ advocate systematic prophylactic elimination of occlusal interferences in young adults and provide some evidence of its beneficial effect and minimal risk.

Occlusal adjustment is contraindicated in the Type B abnormal occlusion. Optimal occlusal characteristics cannot be obtained via occlusal adjustment and treatment, if undertaken, should be of a definitive type that will correct the underlying morphological deformity. If appropriate treatment cannot be done, the

patient may benefit by selective grinding to remove or reduce localized interferences, or by occlusal stabilization splint therapy.

The final contraindication to occlusal adjustment is the potential "occlusion positive patient" for whom no treatment is likely to be satisfactory. An example is the person who presents with a history of multiple treatment procedures for ORDs by multiple clinicians with results that range from unsatisfactory to disastrous.¹⁸ Another is the patient who manifests many signs of stress or overt emotional distress, and the last is the occlusion-oriented dental professional. Ash³³ discusses, at some length, the "phantom bite" patient "...who complains persistently that his/her 'bite feels off' ... but no matter what therapy is provided ... is never able to sense a satisfactory 'bite'." Procedures done on these "occlusion positive" patients should be minimal, tentative and reversible, and occlusal stabilization splints are an obvious choice if treatment is necessary.

Summary

Occlusal adjustment is the removal of occlusal interferences from the Type C abnormal occlusion, and it is an effective procedure when used in narrowly defined circumstances.^{1,30,33,44,45,46,47,48} With a properly selected patient, the procedure can impart enough of the characteristics of optimal occlusion to transform a functional malocclusion into a functional normal occlusion.

Selective grinding is the elimination of localized interferences in a Type B abnormal occlusion. Stable occlusal contacts in centric positions can enhance swallowing, and other interferences can be altered to alleviate, but not eliminate, some signs and symptoms of ORDs.

ORDs can be managed by one or more of the following dental treatments: occlusal adjustment, the occlusal stabilization splint, appliance orthodontics, orthognathic surgery, and restorative and prosthetic dentistry. The concerned clinician will be aware of the many therapies available and will select the appropriate approach to treatment for a particular patient. Δ

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Answers to Nutrition Pop Quiz

1. C. The average meal of a burger, fries and a shake is high in protein and usually contains minerals in significant amounts. But it is short on vitamins, high in undesirable fat and sodium and does not add up to a balanced meal.
2. C. Diets lower in fat, cholesterol and sodium (and the decline of smoking) are significant factors in the declining death rate from coronary heart disease.
3. C. In general, the darker the green, the more nutritious.
4. C & D. The processing of white flour removes the nutritious wheat bran, which contains most of the fiber and some of the vitamins. Whole wheat flour retains the bran.
5. False. No research has ever shown that chocolate or any other food makes your skin break out.
6. A & B. Nearly half the fat in chicken is in the skin.
7. A. You might get as much as 3,500 milligrams of sodium from these. A Big Mac or Whopper has about 1,000 milligrams, two ounces of chips have about 300 milligrams.
8. B & C. Most vegetable oils, except palm and coconut, are highly unsaturated.
9. A. Fish oils contain omega-3 fatty acids, which appear to be even more effective than polyunsaturated vegetable oils in lowering blood cholesterol levels.
10. C. Provided you don't overcook, microwaving is easier on vitamins and minerals than other methods.
11. A. There is no evidence that eating yogurt can add even one day to your life.
12. D. Moderate caffeine intake has never been shown to cause disease.
13. A. The brewed coffee would do it. The cola would have 30 to 70 milligrams per cup, the cocoa, 5 to 20 milligrams per cup.
14. A & B. One cup of pasta cooked al dente contains more protein (7 grams) than an egg.
15. Both false. Of course, you may prefer the fresh pasta or the spinach pasta for other reasons.

A new root canal instrument

The authors describe the design and preliminary testing of a newly designed instrument for root canal preparation called the S.W. instrument (Senia and Wildey). The instrument is available as a hand-held instrument in ISO sizes of 20 through 80 and as an engine-driven instrument for use with a reciprocating handpiece in sizes 60 through 100. The instrument has a non-cutting tip or pilot, as it is referred to in the paper, which measures 0.75 mm in the hand instrument and 2 mm in the engine-driven instrument. Unlike standard root canal instruments, the cutting portion of the instrument is 2.0 to 4.0 mm in length and similar in cross-section geometry to a K-flex file (Kerr Mfg.). The shaft portion is smooth and narrower than the cutting portion for maximum flexibility, the elimination of canal transportation during instrumentation and the accommodation of root canal debris.

The authors also describe two canal preparation techniques using the instrument, one for straight and the other for

curved root canals. Experimentation with the latter uses extracted human teeth and standardized clear plastic blocks with a simulated root canal. The reported performance of the instrument was superior to that of conventional instruments in both canal preparation and debridement and required less time because recapitulation of the canal (re-establishment of the full working length with a smaller instrument) was not required. △

(Note: This paper is only a preliminary report and is highly subjective in form and content. Further investigations of the instrument and its application to endodontic preparation of the root canal is advisable so that its efficacy can be established. It is brought to the attention of our readers because it appears to offer promise as a practical alternative to conventional canal instrumentation. Its citation in the DENTALETTER should not be interpreted as an endorsement of the product or the results of its preliminary trial. CDT).

Wildey, W.L. and Senia, E.S. *Oral Surg Oral Med Oral Pathol* 67:198-207, 1989.

Special thanks to THE DENTALETTER, June, 1989.

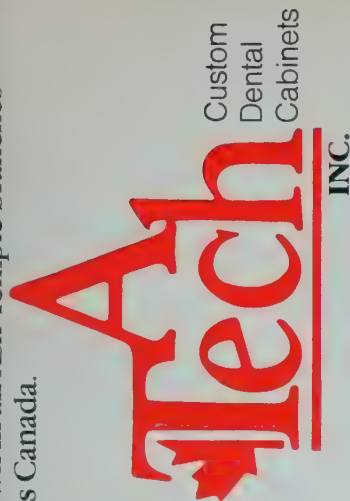
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Congenitally Missing Maxillary First Permanent Molars: A case report

Gerard L. Lapeer, DDS
St. Mary's of the Lake Hospital
Kingston, Ontario
Canada.

ABSTRACT

Congenitally absent maxillary first permanent molars is a rare clinical finding. It usually occurs with severe oligodontia in association with other abnormalities of the integumentary system. This article presents the case of bilateral absent maxillary permanent molars with severe oligodontia and no other abnormalities.

SOMMAIRE

On trouve rarement des personnes dont les premières molaires permanentes manquent à la mâchoire supérieure depuis leur naissance. Ordinairement, ces personnes sont atteintes d'une oligodontie grave et leur système tégumentaire présente d'autres anomalies. Voici le cas d'une personne sans molaires permanentes aux deux côtés de la mâchoire supérieure et atteinte d'une oligodontie grave mais ne présentant pas d'autres anomalies.

The occurrence of congenitally absent maxillary first permanent molars with severe oligodontia is highly suggestive of hereditary disorders such as Rieger's syndrome,¹ hypohydrotic ectodermal dysplasia,¹ incontinentia pigmenti,¹ Hallerman-Streiff syndrome,¹ and premolar aplasia-hyperhydrosis-cavities prematura (PHC) syndrome.¹ This article presents the case of a patient with congenitally absent maxillary first permanent molars, severe oligodontia, and no other associated abnormalities of the integumentary system.

Case report

A.M., an eight-year old Caucasian female (d.o.b. July 16/80), was examined in my office for numerous missing permanent teeth and large carious lesions in her permanent mandibular first molars. Clinical examination and a panoramic radiograph

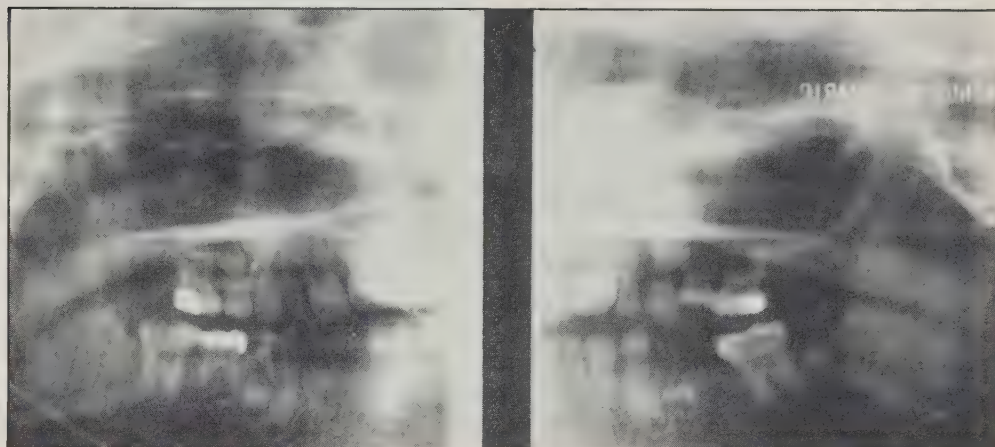


Fig. 1: Panoramic radiograph of patient showing numerous congenitally missing permanent teeth.

7	6	2	2	4	5	6	7
7	1		1	5	7		

(Fig. 1) revealed the following missing permanent teeth: the right maxillary first and second molars and lateral incisor; the left maxillary first and second molars, first and second premolars, and lateral incisor; the left mandibular second molar, second premolar and central incisor; and the right mandibular second molar and central incisor. The left mandibular first and second primary molars were also missing, but they had been extracted two years earlier. There was no other history of extraction. Both mandibular first permanent molars and right mandibular first and second primary molars had large carious lesions. There was ankylosis of the

left maxillary first primary molar and odontodysplasia of the right mandibular second premolar.

The patient's mother and sister (10 years old) were given dental examinations and the patient's mother was questioned regarding other family members who had missing teeth or other problems of the integumentary system. These investigations proved negative. The patient's father was a poor historian. He was edentulous wearing a complete upper and lower denture. The patient's mother reported an uneventful pregnancy and delivery. The patient's medical history and consultation with her physician were

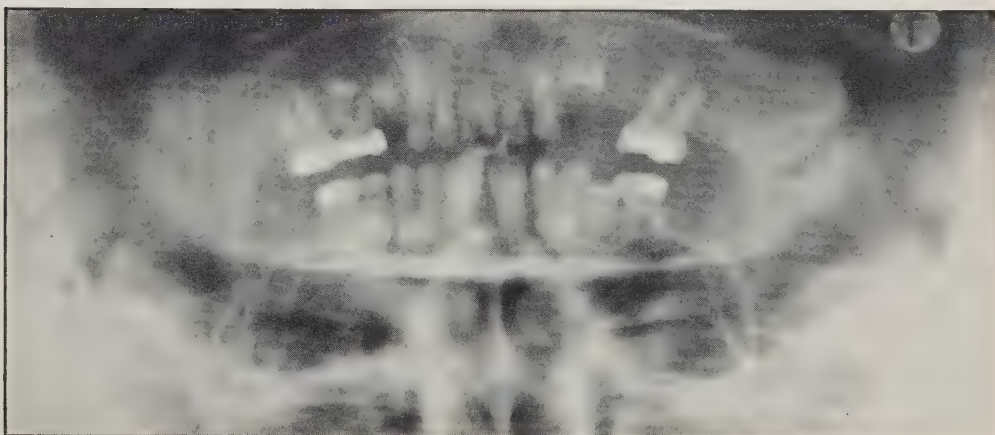


Fig. 2: Panoramic radiograph of the patient 18 months later.

non-contributory. These factors resulted in a diagnoses of severe oligodontia without any other associated inherited defects. The right mandibular first primary molar was extracted and the carious lesions were restored. The patient's parents were informed of the severity of the patient's condition, and were referred for orthodontic consultation. Due to financial constraints, it was decided to place the patient on a program of observation and maintenance.

A panoramic radiograph of A.M. (age 9½ years) was taken 18 months later (Fig. II). There was still no evidence of the missing teeth. A panoramic radiograph of her sister (Fig. III), who was 11 years 9 months, demonstrated absence of the mandibular and maxillary second permanent molars. The patient's sister was diagnosed with mild oligodontia and the ankylosed right mandibular primary canine was extracted. Both patients are being maintained with conservative routine dental care and their parents have refused any other investigations to clarify their daughter's oligodontia.

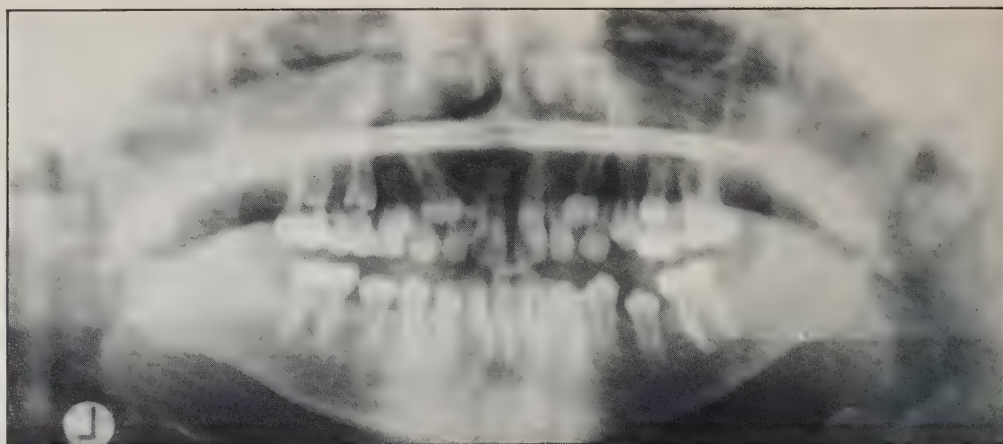


Fig. III: Panoramic radiograph of the patient's sister showing congenitally missing maxillary and mandibular second permanent molars.

Reprint requests to:
Dr. Gerard L. Lapeer
St. Mary's of the Lake Hospital
P.O. Box 3600
Kingston, Ontario
Canada K7L 5A2

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Discussion

The dental literature contains isolated case reports of oligodontia involving maxillary first permanent molars without other associated abnormalities; but these case reports are rare.^{2,3,4} In most cases, severe oligodontia involving maxillary first permanent molars is usually associated with other abnormalities of the integumentary system.¹

The patient in this case report was a healthy female presenting with congenitally missing maxillary first permanent molars with no other associated abnormalities. Her sister had congenitally missing maxillary and mandibular second permanent molars. There was no evidence of missing teeth or problems with the integumentary system with other family members. The patient's mother reported an uneventful pregnancy and delivery, and the patient's medical history and status were non-contributory. These factors suggest mutation as the possible cause for oligodontia in this patient.² There is also the possibility that this is the incomplete expression of a gene for a more serious disorder.

Severe oligodontia, of this type, presents a complex problem both orthodontically and prosthetically. The importance of early diagnosis by panoramic radiography for a favourable treatment outcome is restated. △

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Orthodontic Education and Practice in Canada: Perceptions of the Profession as Shown in a Recent Survey

Peter A. Konchak, DDS, Dip Ortho
Professor and Director,
Division of Orthodontics,

College of Dentistry,
University of Saskatchewan
Ray E. McDermott, DDS, MSc
Associate Professor and Head,
Department of Community and Pediatric Dentistry,
College of Dentistry,
University of Saskatchewan

ABSTRACT

A questionnaire survey concerning the training and practice of orthodontics was mailed to 20 per cent of the licensed dentists and to dental specialists in the provinces of Ontario, Manitoba, Alberta, and British Columbia between March and August of 1987. The response rate was 49.4 per cent. Many dentists and orthodontists who completed the survey reported declines in patient load during the past three years. Dental schools are perceived to be providing inadequate orthodontic training, in both the undergraduate dental curriculum and in the area of continuing education. A desire for an increase in time, quality, and applications was expressed. Between 20.1 and 34.2 per cent of fully-banded orthodontic cases are being treated by general practitioners.

SOMMAIRE

De mars à août 1987, on a fait parvenir à 20 pour cent des dentistes et des spécialistes dentaires autorisés de l'Ontario, du Manitoba, de l'Alberta et de la Colombie-Britannique un questionnaire portant sur l'enseignement et l'exercice de l'orthodontie. 49,4 pour cent des personnes à qui le questionnaire a été adressé y ont répondu et, parmi elles, nombreuses ont été celles qui ont signalé une baisse de clientèle au cours des trois années précédant le sondage. Tant au niveau universitaire qu'en éducation permanente, la formation donnée en orthodontie dans les écoles de médecine dentaire paraît inadéquate. Aussi désire-t-on que plus de temps et d'exercices pratiques soient consacrés à l'orthodontie et que l'enseignement soit meilleur. De 20,1 à 34,2 pour

cent des cas d'orthodontie avec baguage complet sont traités par des praticiens généraux.

This report of the findings of a survey on the training and delivery of orthodontic services in the provinces of British Columbia, Alberta, Manitoba and Ontario follows a previous survey^{1,2} conducted in the province of Saskatchewan. Additional information was considered necessary in order to provide an assessment of the practitioners' current perceptions of orthodontic education and practice in other areas in Canada where differences might exist due to varying demographics, government and professional policies, and dentist-to-population ratios.

A review of the literature and discussions within the profession indicate that significant and critical changes are occurring both in the mix and also in the manner of delivery of dental care services.^{3,4,5} Paramount among these changes are declining caries rates,^{6,7,8,9,10} and increases in the supply of dental manpower.^{11,12,13,14} These changes have major implications for present and future dental, and, in particular, orthodontic education, both at the undergraduate and graduate levels.

Few studies or surveys have investigated the extent of orthodontic treatment being provided to patients by general dental practitioners.¹⁵ In the American Association of Orthodontists 1973 Manpower study,¹⁶ 14 per cent of the reported reduction in size of practice was attributed to competition with general practitioners who were increasing the amount of orthodontic services they were providing. In California, 55 per cent of

the orthodontic care provided to patients through prepayment programs is reported as being delivered by dentists not certified as orthodontic specialists.¹⁷

In Canada, very little has been written in the dental literature with respect to either the delivery or the educational requirements for the practice of orthodontics. It has been speculated that current practice trends indicate that more orthodontic treatment is being undertaken by non-orthodontists, fewer orthodontists are being trained, and by the mid 1990s, up to 40 per cent of the services provided in general dental practice will involve some type of orthodontic therapy.¹⁸

Method

In the present survey, a questionnaire was mailed to a random sample of 20 per cent of the licensed dentists, including registered specialists, in the provinces of British Columbia, Alberta, Manitoba and Ontario in March of 1987. The purpose of this survey was to gather information from those dentists surveyed, regarding their perceptions of orthodontic undergraduate training, continuing education, and the delivery of orthodontic services. In the provinces of Alberta and Manitoba, where the numbers of orthodontists are low, the survey was sent to all orthodontists in order to obtain an adequate sample size.

1976 survey forms were mailed out and 977 completed forms were returned for a response rate of 49.44 per cent. Responses were grouped as follows:

General practitioners	756 responses
All specialists	74 responses
Orthodontists	147 responses
Total sample size	977 responses

Thirty-six questions were posed on the

survey form. Areas covered included responses from general practitioners, an all specialist group, and orthodontists.

Information areas included:

- 1) general information
- 2) undergraduate orthodontic education
- 3) continuing education in orthodontics for general dentists
- 4) general practice and orthodontics
- 5) orthodontists' responses.

Since the amount of data collected was considerable, only the significant points will be summarized in the above categories and presented in this paper.

Results

This survey has attempted to evaluate the perceptions of general dental practitioners and orthodontic specialists with respect to orthodontic education and practice in the provinces of Ontario, Manitoba, Alberta and British Columbia. The province of Saskatchewan was surveyed previously.^{1,2}

General Information

1. There is generally a good relationship in the dental community between general practitioners and orthodontic specialists, albeit more competitive from the orthodontists' point of view.
2. Many dentists (21.6 per cent) and orthodontists (34.0 per cent) are experiencing decreases in their patient load.
3. The dental schools are overwhelmingly seen by the profession (84.3 per cent) as graduating too many dentists. The consensus is (88.1 per cent) that the numbers of undergraduate students should be reduced.

Undergraduate Orthodontic Education

1. Dental schools are rated as fair (58.3 per cent) in providing the basic principles of orthodontic education, but poor (80.4 per cent) in providing training which leads to competency in providing orthodontic care to patients.
2. There is a perceived need for more curriculum time (61.2 per cent) in the teaching of orthodontics in the schools although, "*time a priori, is a classic example of how not to develop a curriculum*".¹⁷
3. Dentists recommended increases in all areas of the orthodontic curriculum with the exception of growth and development.
4. Orthodontists recommended increases in the areas of growth and development, diagnosis and treatment plan-

ning, and decreases in fixed banded therapy and adult orthodontics.

Continuing Education in Orthodontics

1. No clear consensus emerged regarding continuing education courses in orthodontics with respect to value, availability, desire and interest and whether or not the present system was fulfilling the need.
2. 47 per cent of respondents indicated attendance at continuing education courses offered in orthodontics.
3. Although courses were available, cost and location were frequently mentioned as being problematic.
4. Sponsorship of courses:
 - a) entrepreneurial independents were seen as the group providing most continuing education courses in orthodontics.
 - b) The perceptions as to who should be presenting these courses were as follows: dental schools — 33.7 per cent, licensing bodies — 19.3 per cent, dental societies — 22.4 per cent, and entrepreneurial independents — 10.4 per cent.

General Practice and Orthodontics

1. Most dentists (66.4 per cent) still refer the majority of patients needing orthodontic care to specialists.
2. The mean amount of time that a general practising dentist spends in his practice providing orthodontic services is 4.9 per cent.

TABLE 1

How many fully banded cases do you have under treatment at the present time?

Number of cases	Percent	Number of dentists
0	39.4	299
less than 10	12.8	98
less than 50	7.4	57
less than 100	1.7	13
more than 100	0.8	6
no response	37.8	287
Total —		760

3. Of those dentists providing orthodontic care, the majority report providing services of an interceptive nature (64.9 per cent). However, 22.7 per cent do treat a varying number of fully-banded cases.

Table 2 is based on the 22.7 per cent of those general practitioners who reported using fixed-banded therapy in the treatment of cases. It indicates the possible range of cases that general practitioners may have in treatment, and is reported by province.

Orthodontists' Responses

1. Many orthodontists (40.1 per cent) are not satisfied with the busyness factor of their practices.

TABLE 2

Numbers of orthodontists, noncertified practitioners, and projected fully-banded cases by province

	Ontario	Manitoba	Sask.	Alberta	Br. Columbia
Cases*	10705-30330	807-3591	1100-2400	2193-8411	7029-20186
Number of certified specialists in orthodontics	218	19	16	51	67
Number of noncertified practitioners	30-85	2.3-10.1	3.1-6.7	6.1-23.6	19.7-56.5
Per cent** cases by non-specialists	12.1-28.1	10.8-34.7	16.3-29.5	10.6-31.6	22.7-45.7
Average % cases by non-specialists	20.1	23.2	22.9	21.1	34.2

* These cases are minimum and maximum projections of cases which may be under treatment by non-specialists in the various provinces. Saskatchewan results are from a previous study.^{1,2}

** Note the range in the percentage cases by non-specialists. Both the number of cases and the percentage of cases treated by non-specialists are shown as ranges since ranges were requested in this question.

2. In response to the question as to whether or not dentists in general practice are treating more orthodontic cases than three years ago, 95.2 per cent of orthodontists answered yes.
3. 68.7 per cent of orthodontists perceive that general dentists are having a major effect on their patient load by providing orthodontic services in their offices.
4. 40.1 per cent also feel that there are too many orthodontists in practice, and 57.1 per cent feel that too many are graduating from postgraduate programs.

Discussion and Conclusions

This survey of dentists and orthodontic specialists indicates that both groups perceive that they are experiencing a decline in the busyness of their practices. There is also a perception that dental schools should be providing better and more relevant teaching in the orthodontic undergraduate curriculum and also become more active in the provision of continuing education courses in orthodontics. Dental schools are seen as training too many dentists to meet present demands for dental services. Many orthodontists express a similar concern with respect to training programs for orthodontic specialists.

In addition, the amount of orthodontic fixed banded treatment provided in all provinces should precipitate action by educators to grapple with this situation. Who will be the future provider of orthodontic services? Educators, the dental profession, and government should monitor manpower needs, not only in general dentistry, but also in the dental specialties.

There has been a perceived oversupply of dental manpower especially with respect to the number of general dentists graduating each year. Recently, the number of students accepted into many Canadian dental schools has been reduced.³ Canadian Faculties of Dentistry are aware of the possible oversupply of dental manpower in Canada in the future and have proposed reductions in the number of students admitted to first year classes.^{3,20}

In the past, few students obtained their dental education outside of Canada. At the present time, a significant number of students are being accepted and are training at American dental schools.²⁰ There were approximately 85 such students during the year 1987. If these students are successful in attaining a dental degree and return to Canada to practise their profession, there will have been no reduction in the number of dentists entering the profession in Canada. In fact, an overall

increase of 3.1 per cent will result, in spite of the cutbacks by Canadian schools. It is not surprising that practising dentists, as shown in this survey, still hold the perception that too many practitioners are being added to the profession each year.

The profession has no reliable data concerning the level of dental diseases now present in the Canadian population and as a result no estimate of future demand for dental services. It is therefore difficult to estimate future manpower requirements. The profession, the licensing bodies and governments need to coordinate their efforts and fund epidemiological surveys which would provide this information on a nation-wide basis.

The dramatic decline in dental caries, has ramifications for the future of the various disciplines of dentistry in addition to restorative dentistry, and will impact on undergraduate curriculum content and on the ultimate mix of services rendered to patients in the general dental office. At a time when the demand for restorative, fixed and removable prosthetics, and endodontic services continues to decline as younger cohorts of patients, exhibiting low levels of dental caries, move through the age groups, many areas of dentistry that traditionally have been the exclusive domain of the specialties will have to receive greater emphasis in undergraduate teaching programs. This will enable practitioners to function effectively in the markedly different environment they will encounter during the 1990s and the 21st century. One of these specialty areas affected will be orthodontics.

As a result of the large quantity of data collected in this survey, it is not possible to report the findings in detail. Readers who wish more in-depth information from the overall survey, or on a provincial basis, should contact the authors with their request. Δ

Reprint requests should be made to:
Dr. P.A. Konchak,
College of Dentistry,
University of Saskatchewan
Saskatoon, Saskatchewan,
S7N 0W0

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Did you know?

A report from the monthly publication of the Addiction Research Foundation of Ontario reports that an Ontario-wide survey of serious sports or recreational injuries indicates alcohol is involved in almost 20 per cent of fatal cases.

- What's the Noonwalk?
- It's the in way
to step out.

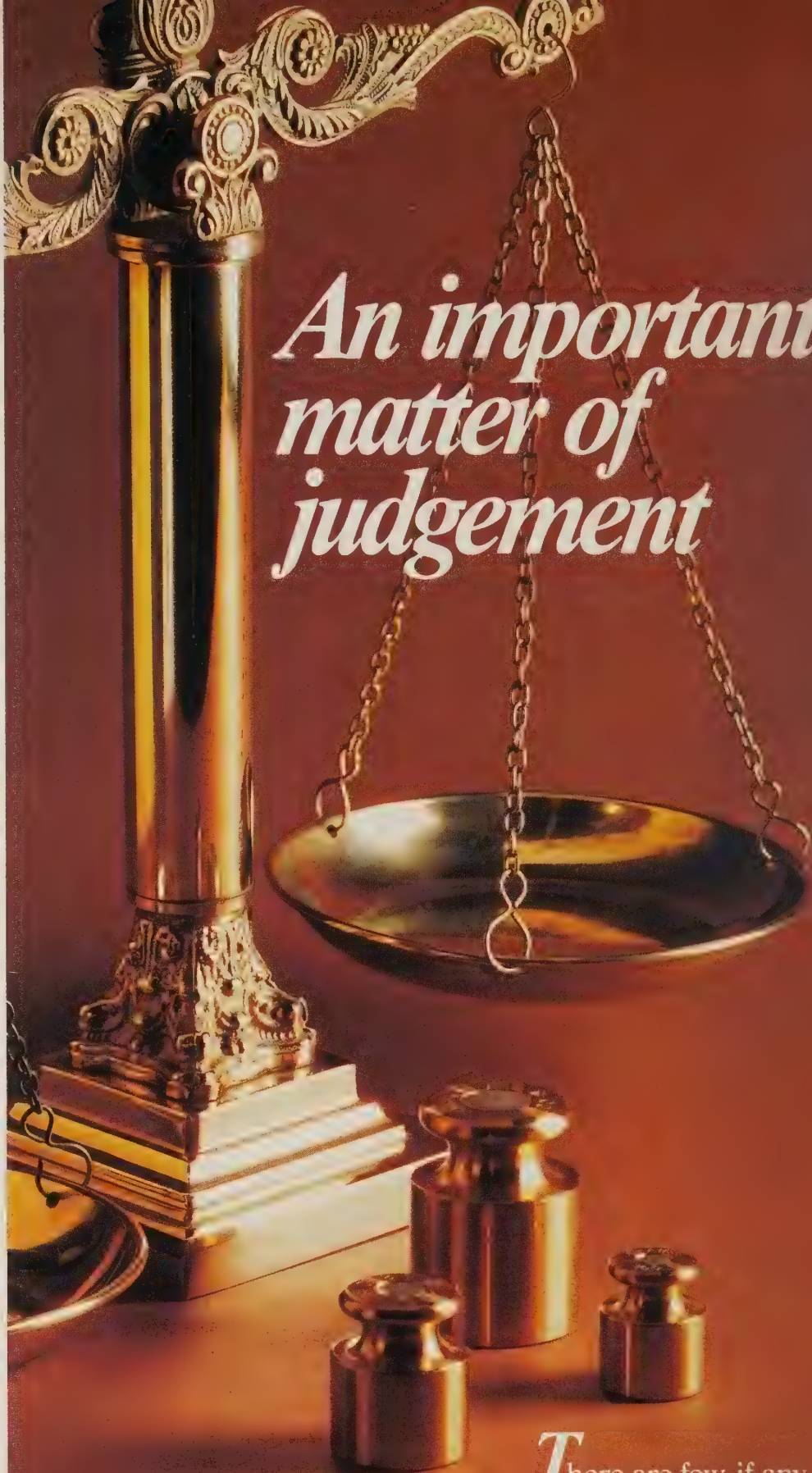


Do the Noonwalk! Step out for a snack,
step out for a breath of air.
And take a bite out of a long day.

Make your move.



An important matter of judgement



There are few, if any, therapeutic decisions made more frequently than those involving so-called simple analgesic/antipyretic drugs. The introduction of OTC ibuprofen now provides three basic choices with important issues in both professional therapy and self-medication. The selection can have far-reaching implications for many patients and also determine the efficacy of concomitant therapy.

Weigh the evidence¹⁻¹⁵

ACETAMINOPHEN		ASA	OTC IBUPROFEN (200mg)
AT LABEL DOSAGE			
EFFICACY			
equipotent with ASA	ANALGESIC	equipotent with acetaminophen	approximately equipotent (200 mg standard dosage unit) vs 650 mg acetaminophen or ASA
equipotent with ASA	ANTIPYRETIC	equipotent with acetaminophen	approximately equipotent (200 mg standard dosage unit) vs 650 mg acetaminophen or ASA
not indicated	ANTI-INFLAMMATORY	required dosage generally exceeds analgesic/antipyretic levels and sustained administration is necessary to achieve serum levels required for anti-inflammatory effect	required dosage generally exceeds analgesic/antipyretic levels and sustained administration is necessary for anti-inflammatory effect
SAFETY			
rare hypersensitivity, GI irritation rarely occurs	ADVERSE EFFECTS	GI bleeding or ulceration, nausea, vomiting, diarrhea, vertigo, tinnitus, hearing loss, pruritus, urticaria, angio-edema, anaphylaxis	epigastric pain, heartburn, nausea, dizziness, GI bleeding and hypersensitivity reactions
slight increase in prothrombin time for patients on oral anti-coagulants but generally clinically insignificant	PRECAUTIONS	history of GI ulcerations, bleeding tendencies, anemia or hypoprothrombinemia; patients with asthma or other allergic conditions; concomitant use with anti-coagulants, uricosurics, other non-narcotic analgesics, hypoglycemics, alcohol, methotrexate	cardiovascular disease involving fluid retention, bleeding disorders, kidney or liver disease
hypersensitivity to acetaminophen	CONTRAINDICATIONS	salicylate sensitivity, active peptic ulcer	peptic ulcer disease, sensitivity to ibuprofen, ASA or other NSAIDs
no known risk	IN PREGNANCY	salicylates interfere with maternal and infant blood clotting and may lengthen duration of pregnancy and parturition; administration during last trimester should be avoided	safety not established in pregnancy and nursing mothers
no age restriction	IN CHILDREN	specific risk of intoxication using therapeutic dosage in febrile and dehydrated children; association with Reye's Syndrome	not to be used in children under 12 years
hepatotoxicity may occur with overdose	HEPATIC TOXICITY	reversible hepatotoxicity in apparent risk groups at high dosage	elevated liver enzymes, jaundice, hepatitis (rare)
no direct association	ANALGESIC NEPHROPATHY	no direct association	no direct association
no known association	RENAL TOXICITY	no known association	reversible renal impairment in predisposed patients
oral anticoagulants (as above) chloramphenicol (increased half life)	DRUG—DRUG INTERACTIONS	oral anticoagulants, uricosurics, non-steroidal anti-inflammatory agents, oral hypoglycemics, corticosteroids, ethyl alcohol, methotrexate	ASA or other NSAIDs, coumarin type anticoagulants, diuretics
ACUTE OVERDOSE			
potentially serious	CLINICAL RISK	potentially serious	potentially serious
supportive management and/or specific antidote (N-acetylcysteine)	TREATMENT	supportive management—no specific antidote	supportive management—no specific antidote

¹⁻¹⁵References listed in brief prescribing information.

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A logical first choice

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Guelph, Canada N1K 1A1

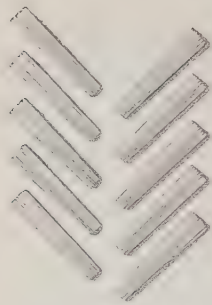
¹⁻¹⁵References listed in brief prescribing information.
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"A rounded brush head with an improved bristle layout would minimize the risk of gum damage and increase patient comfort."



".008mm polished nylon bristles with superior end rounding would help prevent gum damage."



"A longer, narrower neck would make it a lot easier to reach back teeth."

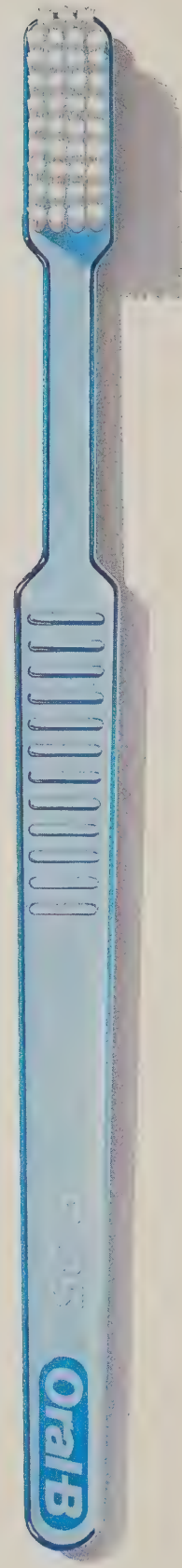


"A lateral ridged thumb grip would definitely improve brushing control."

"A longer handle would improve dexterity and make it easier for patients to reach back teeth."

The Oral-B Plus is exactly what you wanted in a toothbrush for safe and effective cleaning. So you can feel as confident in recommending this brush as your patients will be in using it. With features like these, the Oral-B Plus is just what the dentist ordered.

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Announcements

July/Juillet 1990

June 30–July 7: The Bermuda Dental Association Convention. For information, contact: Dr. Bob Brandon, 85 Lonsdale Dr., London, Ontario, N6G 1T4. Tel.: (519) 657-3368.

July 2-5: 5th Biennial Congress of the International Association of Oral Pathologists in Tokyo, Japan. Contact: Dr. Tetsuo Ishiki, Niigata University, 2 Gakko-Cho, Niigata #951, Japan.

July 6-7: Special Care in Dentistry: in London International College of Dentists, Federation of Special Care in Dentistry (USA) in London. Contact: Dr. B.D. Glynn, 35 Devonshire PL, London, W1N 1PE, England.

July 11-14: 37th Annual Congress of the European Organization for Caries Research in Ljubljana, Yugoslavia. For details, contact: Dr. V. Vrbic, University klicny Ctr. Ljubljana, Mrvatski TRG 6, Y-61000, Ljubljana, Yugoslavia.

July 13-19: Academy of General Dentistry Contact: Ms. Debbie Jepsen, 211 E Chicago Ave, Suite 1200, Chicago, IL 60611, USA.

August/Août 1990

August: Annual Congress of International Association of Dental Students in Puerto Rico. Contact: The Secretary, International Association of Dental Students, c/o Fédération dentaire internationale, 64 Wimpole St., London, W1M 8AL, England.

August 24-28: Canadian Dental Association, Annual Convention: Quebec City, Quebec, Canada. (English and French). Please Contact: Dr. Michel Jahjah, General Chairman, CDA Conventions, 1815 Alta Vista Drive, Ottawa, Ontario K1G 3Y6 (613) 523-1770 FAX: (613) 523-7736.

August 24-28: 15th Biennial Conference of the New Zealand Dental Association, Dunedin, New Zealand: For further details, write Conference Secretary, PO Box 647, Dunedin, New Zealand.

August 25: International College of Dentists, Canadian Section – Annual Meeting Convocation: The Chateau Laurier Hotel, Ottawa, Ontario. Editor, N. Murnoe, 203-333 Bayview Ave., Willowdale, Ont. M2K 1G4.

August 25: A meeting of the Canadian Association of Dental Consultants will be held on Saturday August 25, 1990 at the Westin Hotel, Ottawa. All members as well as perspective members are urged to attend. For further information contact, Dr. J. Berman, (613) 234-1595, Ottawa.

August 25-28: Congress of the Association of Dental Education in Europe in Budapest, Hungary. For details, contact: Prof. Jolan Banoczy, Mikszath K ter 5, H-1088 Budapest, Hungary.

August 25-29: Canadian Dental Association, Annual Convention: Ottawa, Ontario, Canada (English and French). Contact: Dr. Michel Jahjah, General Chairman, CDA Conventions, 1815 Alta Vista Drive, Ottawa, Ontario K1G 3Y6. (613) 523-1770 FAX: (613) 523-7736.

August 27: 7:30 to 9:30 a.m., Pierre Fauchard Breakfast, Burgundy Room, Pierre Fauchard Academy, Monday, August 27th. Contact, Dr. Michael Crompton, 567 St. George Street, Moncton, NB. E1E 2B9, or call: (506) 857-2186, (506) 855-4856.

September/Septembre 1990

September: Annual Conference of the European Prosthodontic Association/Dutch Society of Prosthetic Dentistry in the Netherlands. Contact: Prof H. de Koomen, ACTA, Postbus 7161, 1007 MC Amsterdam, The Netherlands.

September 2-6: 10th Congress of the International Association of Dentistry for the Handicapped in Nice. Contact: Prof J.R. Jasmin, Université de Nice, UFR Odontologie, Faculté de Chirurgie dentaire, av Joseph Vallot, Parc Valrose, 06034 Nice, France.

September 5-7: 7th Biennial Congress of the International Academy of Gnathology (Asian Section) in Singapore. Contact: The Secretariat, IAG-7th Annual Congress, Communication International Assoc Pte Ltd, 450 Alexandra Rd, #10-00 Inchange House, Singapore 0511

September 5-7: Singapore: International Academy of Gnathology, 7th Biennial Congress. Congress Management, Orchard Dental Centre PTE Ltd., 268, Orchard Road, Yen San Building, #05-07 Singapore 0923, 734-3162.

September 6-7: Federation of Prosthodontic Organizations Contact: Mr. Peter C. Goulding, 211 E Chicago Ave, Suite 948, Chicago, IL 60611, USA.

September 8-14: 78th Annual World Dental Congress in Singapore. Contact: Fédération dentaire internationale, 64 Wimpole St, London W1M 8AL, England.

September 10-14: 10th Congress of the European Association for Cranio-Maxillo-facial Surgery in Brussels. Contact: Mrs. H. van Leemputten, rue Joseph Stallaert 28, B-1180 Brussels, Belgium.

September 12-15: dentchnica 90 and the 10th International Congress of Dental Technicians in Cologne, Germany. For information, write: Verband Deutscher Zahntechniker-Innugen, Ilkenhansstraße 6, D-6000 Frankfurt 50, West Germany.

September 12-15: Dentechnica '90 in Cologne – The 10th International Congress of Dental Technicians with Trade Exhibition for Dental Laboratories, in the grounds of the KolnMesse, Messeplatz 1, Postfach 21-07-60, d-5000 Koln 21 (Deutz).

September 13-16: The Canadian Academy of Endodontics in conjunction with The College of Dental Surgeons of Saskatchewan present SEPTEMBER-FEST in Saskatoon – Ramada Renaissance Hotel, Saskatoon, Saskatchewan. For more information contact: Dr. Paul Teplitsky, Dental Clinic, University of Saskatchewan, Saskatoon, SK. S7N 0W0. Tel: (306) 966-5089.

September 13-16: American Academy of Orthodontics for the General Practitioner in Stevens Point, WI. Contact: Ms. Janes Taylor, 3953 N 76th, Milwaukee, WI 53222, USA.

September 16-20: New Zealand Association of Orthodontists, Queenstown, New Zealand: Dr. P.G. Gilbert, P.O. Box 5217, Dunedin, New Zealand.

September 17-20: The 4th Meeting of International Academy of Periodontology, to be held in Istanbul. Contact: Mr. M. Midda, University of Bristol, Dental School and Hospital, Lower Maudlin Street, Bristol BS1 2LY, England.

September 27-29: 41st Annual New Orleans Dental Conference Contact: Ms. Norma Ward, New Orleans Dental Conference, Suite 119, 3101 W Napoleon Ave, Metairie, LA 70001, USA.

September 27-30: 108th Annual Session of the American Dental Trade Association in Hilton Head, South Carolina. Contact: Mr. Nikolaj Petrovic, American Dental Trade Association, 4222 King St, Alexandria, VA 22302, USA.

October/Octobre 1990

October 1: Winnipeg Dental Society sponsored course: "Aerobics Program For the Total Well-Being" by Dr. Ken Cooper. Registration Fee \$75. Contact: Dr. Philip Poon 942-2438.

October 1-5: Annual Conference of the Canadian Society of Forensic Science, Skyline Hotel, Ottawa, Ontario, Canada. The theme is FORENSICS 90, with workshops in DNA, Blood splatter Pattern Analysis, Fire Investigation, Polymers, Document Examination and Thermography. Contact: CSFC, Suite 215, 2660 Southvale Crescent, Ottawa, Ontario, Canada K1B 4W5.

October 7-8: American Board of Oral & Maxillofacial Radiology 1990 Certifying Examination in Boston, MA. Applications must be submitted by March 1, 1990. For further information or application forms, please contact: Dr. Axel Ruprecht, University of Iowa, College of Dentistry, DSB S-356, Iowa City, IA 52242-0101.

October 10-13: 53rd Annual Session of the American Association of Public Health Dentistry Deadline for abstracts April 1/90. Send abstracts to: Alice M. Horowitz, 6307 Herkos Crt, Bethesda, MD 20817 USA.

October 11-14: London, Ontario. Annual Meeting of the Canadian pain society (IASP Chapter). Contact: Ms. Inese Kramins, Local Arrangements committee, Department of Psychology, University of Western Ontario, London, Ontario, N6A 5C2, Canada.

October 13-16: 131st Annual Session of the American Dental Association in Boston. Contact: Office of International Affairs, American Dental Association, 211 E. Chicago Ave, Chicago, IL 60611, USA.

November/Novembre 1990

November 2: Maximizing Team Effectiveness, and Computers & Dentistry: Sponsored by the Winnipeg Dental Society. Instructors are Dr. Bud Sipko and Dr. Diane Rekon. Fee is \$80. Contact Dr. Philip Poon, 942-2438, Winnipeg Dental Society.

November 13-18: American Dental Association: 131st Annual Session will be held in Boston, Massachusetts. For further information, write the Council on ADA Sessions and International Relations, American Dental Associations, 211 East Chicago Avenue, Chicago, Illinois 60611, USA.

November 22: Toronto Academy of Dentistry, 53rd Annual Winter Clinic, Metropolitan Toronto Convention Centre, 255 Front Street West, Toronto, Ontario. For information contact the Academy of Dentistry at (416) 967-5649.

November 23: Vancouver and District Dental Society Annual Meeting: In Vancouver BC, Grey Cup Week. Contact Mrs Susan Ryan, VDDS, Suite 401-1765 West Eight Ave., Vancouver. V6J 5C6.

ORAL HEALTH, OSTEOPOROSIS, AND PHENYTOIN (Dilantin)

There are elderly people who have used Dilantin for years and who are in the osteoporosis risk group. There have been sporadic reports Dilantin's influence on bone, on bone repair, and on certain oral conditions.

If you have a senior patient using Dilantin, will you write?

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Now you can strengthen your skills and clinical experience as a Dental Assistant by enrolling in NAIT's Independent Study Program in Dental Assisting!

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The courses offered are available in a two-term program. You can complete the entire program for a certificate in Dental Assisting by Independent Study or you can take individual subjects.

Successful completion of the two-term program, and a practical evaluation, will give you the pre-requisites required for Level I, national certification and the opportunity to apply to provincial Level II programs.

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- Communications
- Periodical Procedures
- Fundamentals of Dental Radiography
- Endodontic Procedures
- Nutrition in Dentistry
- Orthodontic Procedures

NOTE: The above courses are also available by single subject for upgrading or review purposes.

Program start dates are: October 15, January 15, April 15.

The fees for 1990/91 are as follows:

Per Term - \$550.00
(Alberta Residents)
- \$650.00
(Out-of-province Applicants)

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ACTIONS:

Acetaminophen is an analgesic and antipyretic.

INDICATIONS:

TYLENOL* acetaminophen is indicated for the relief of pain and fever. Also as an analgesic/antipyretic in the symptomatic treatment of colds.

CONTRAINDICATIONS:

Hypersensitivity to acetaminophen.

ADVERSE EFFECTS:

In contrast to salicylates, gastrointestinal irritation rarely occurs with acetaminophen. If a rare hypersensitivity reaction occurs, discontinue the drug. Hypersensitivity is manifested by rash or urticaria. Regular use of acetaminophen has shown to produce a slight increase in prothrombin time in patients receiving oral anticoagulants, but the clinical significance of this effect is not clear.

PRECAUTIONS AND TREATMENT OF OVERDOSE:

The majority of patients who have ingested an overdose large enough to cause hepatic toxicity have early symptoms. However, since there are exceptions, in cases of suspected acetaminophen overdose, begin specific antidotal therapy as soon as possible. Maintain supportive treatment throughout management of overdose as indicated by the results of acetaminophen plasma levels, liver function tests and other clinical laboratory tests.

N-acetylcysteine as an antidote for acetaminophen overdose is recommended and is available in oral and parenteral dosage forms. More detailed information on the treatment of acetaminophen overdose with N-acetylcysteine is available from the manufacturers of its oral and parenteral dosage forms, or contact your nearest Poison Control/Information Centre.

DOSAGE:

Adults:

650 to 1000 mg every 4 to 6 hours, not to exceed 4000 mg in 24 hours.

Children

Based on Weight

10-15 mg/kg every 4 to 6 hours, not to exceed 65 mg/kg in 24 hours

SUPPLIED:

TYLENOL* Drops: Each 1.0 mL contains 80 mg acetaminophen in an orange-coloured, non-alcoholic liquid vehicle with a new improved, fruit-flavoured taste. Available in bottles containing 15 mL† and 24 mL† and a calibrated dropper.

‡ Sweetened with sodium cyclamate and sorbitol.

TYLENOL* Elixir: Each 5 mL contains 160 mg acetaminophen in a cherry-flavoured, non-alcoholic red liquid vehicle. Available in bottles containing 100 mL† and 500 mL.

TYLENOL* Chewable Tablets 80 mg: Each round pink tablet, scored one side and engraved "TYLENOL" the other side, contains 80 mg acetaminophen. Available in bottles of 24† tablets.

TYLENOL* Junior Strength Caplets 160 mg: Each white caplet, scored on one side and engraved "TYLENOL 160" the other side, contains 160 mg acetaminophen. Available in blister packs of 20†

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TYLENOL* Caplets 500 mg: Each white caplet engraved "TYLENOL" on one side and "500" other side, contains 500 mg acetaminophen. Available in bottles of 24†, 50 and 100† caplets.

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†container provided with a child-resistant closure.

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BRITISH COLUMBIA—Parksville: Parksville, BC needs a dentist. Set up practice in this fast-growing city on the East Coast of Vancouver Island. Professional Building under construction. Join 8 family physicians, specialists, pharmacy, laboratory, etc. Call Dr. Graham White any evening after 7h30. (604) 248-9203.

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NOVA SCOTIA—Halifax: Established solo family practice. High net, low pressure. Central location near Dalhousie University. Dentist pursuing specialty training. Please call: (902) 429-5939.

AUSTRALIA—Melbourne: FOR SALE: One man Orthodontic or Pedodontic 3-room practice in 20 square feet

Edwardian brick house, with 2 bedrooms, 1 large living-dining room. Close to many schools, direct transport at the door. Sought after residential district only 8 kms to city centre. Contact Tony Jenkins, 25 Neville Street, Box Hill 3128, Australia. Fax No. (613) 808-7968.

Associateships Available

BRITISH COLUMBIA: LOCUM/ ASSOCIATESHIP. Experienced locum required June/July for six months extended leave. Separate associate position also available. These positions can be combined providing a unique career opportunity in our busy state-of-the-art practice for a capable and conscientious practitioner. Reply to Dr. Greg Nelson (604) 246-8134.

BRITISH COLUMBIA—Abbotsford: ASSOCIATE REQUIRED Associateship with view to partnership available to career minded dentist. Well-established, busy general practice is located one hour east of downtown Vancouver. Call: Dr. A. Quadir (604) 852-8487.

BRITISH COLUMBIA—Chilliwack: Associateship with view to partnership available to dentist committed to continuing education and excellence in patient care. Busy practice located one hour east of Vancouver in beautiful Fraser Valley. Area offers skiing, hiking, boating and mild climate. Present associate returning to school after having busy practice for 3½ years. For further information, contact Dr. Michael Thomas, 102-45625 Hodgins Ave, Chilliwack BC V2P 1P2 or call (604) 792-0021 (office) or (604) 795-9818 (residence).

BRITISH COLUMBIA—Duncan: 45 minutes from Victoria. Full-time Associate required. Busy general practice in Medical dental building with excellent support staff including Hygienists. Call (604) 748-8141, Drs. Anna Wang or Gary Chilibeck.

BRITISH COLUMBIA—Nanaimo: Associate required. Excellent opportunity in busy and growing practice in mall setting. Wonderful climate and recreational facilities. Close to Vancouver and Victoria. Reply: Dr. Patricia Crosson — days (604) 754-1949, evenings (604) 468-9892.

ALBERTA—Calgary: PART-TIME ASSOCIATE required for busy general

practice in downtown Calgary. Contact: Dr. Maureen Meneley, 1227-12th Avenue, South West Calgary T3B 5B7.

ALBERTA—Red Deer: Associate needed on a full- or part-time basis for a busy Mall practice. Partnership a definite possibility for the right individual. Call (403) 346-1714 after 6:00 pm.

ALBERTA—St. Paul: Associate required for very busy rural practice in St. Paul with possibility of future buy-in. Associate could begin June 1990. St. Paul is a town of 5200 people located 200 km northeast of Edmonton. Enthusiastic, quality-conscious individuals are asked to contact: Dr. Larry Hodinsky, Box 235, St. Paul, Alberta T0A 3A0. Tel: (403) 645-2232 Bus. (403) 645-5482 Res.

SASKATCHEWAN—Regina: Full-time associate wanted for growing family practice. Excellent opportunity for committed dentist. Reply to: Dr. R. Katz (306) 924-1494.

ONTARIO—Hamilton/Mississauga: Periodontist looking for part-time associateship in Hamilton to Mississauga area. Specialist or large progressive general practice preferred. Please reply to CDA Box #2491.

ONTARIO—Leamington: Associateship leading to ownership. We require a special person to join our rapidly expanding general dentistry practice in a recently-completed, state-of-the-art facility. This individual must believe in clinical excellence, in the value of a team approach and in the importance of on-going continuing education. A full-time position is available immediately. If you are seeking a challenging and rewarding future in dentistry, please call (519) 322-2866 and ask for Lynn.

ONTARIO—Mississauga: Full-time and part-time associates needed for new modern Mississauga office. Excellent opportunity for progressive practitioner. Storefront location in shopping plaza, 250,000 sq ft. Modern facilities in professional walk-in medical-dental. Positions available June 1990. Call: (416) 452-7111.

ONTARIO—Sarnia: Associate required for a full- or part-time position. This general practice offers full patient load, modern equipment and high insurance coverage in a professional setting. Excellent income. Buy in or partnership opportunity. Dr. T. Pringle, (519) 542-3427.

ONTARIO—Sudbury: Full-time associate required to practice between 2 offices. One storefront with 2 optometrists and 2 veterinarians, the other in a medical/dental building with a library, pharmacy and medical doctor. Am the only dentist servicing about 5000 people. 40-60 per cent associate percentage offered. Call (705) 522-4252.

ONTARIO—Toronto: ASSOCIATESHIP AVAILABLE for two to three days a week in downtown group practice. Contact Lisa (416) 535-2111.

QUEBEC—Pincourt: Dentist bilingue avec possibilité d'association pour clinique à l'ouest de Montréal. Contactez Dr De La Fuente, au (514) 453-0830.

NEW BRUNSWICK—Dalhousie: Venez visiter la Baie des chaleurs. Associé ou partenaire demandé pour pratique dynamique et multidisciplinaire. Bureau rénové en 1989, 5 salles opératoires. Clientèle avec régime d'assurance. Grand bassin de population à 15 minutes. (506) 684-2747 ou 684-5873.

NEW BRUNSWICK—Saint John: Associates required for a busy, well-established general practice with emphasis on preventive, advanced restorative and cosmetic dentistry. Our new, computerized state-of-the-art clinic boasts an excellent support staff and is located in a high-traffic mall connected to several office towers. We are looking for an enthusiastic, outgoing, conscientious person with good interpersonal skills. The successful candidate must share our beliefs in clinical excellence in patient care, the value of the team approach and of ongoing continuing education. Saint John, which is by the sea, offers outstanding recreation opportunities — fishing, hunting, skiing, sailing, golf, affordable housing, good schools and easy access to major Canadian and US centres. This is an excellent opportunity for those seeking a challenging and rewarding future in dentistry. Please write to: CDA Box 2491.

NOVA SCOTIA—Halifax: Bilingual dentist completing general practice residency seeks full-time associateship in Halifax or surrounding area. Please write to CDA Box # 2486.

NEWFOUNDLAND: LOCUM REQUIRED for rural dental practice, Burin Peninsula, from August to December 1990. Please reply Dr. M.T. Flynn (709) 891-2390.

NEWFOUNDLAND—Marystown: Associate wanted for rural Newfoundland practice. Current associate nets \$100,000 plus per annum. Full book plus friendly staff. Latest equipment and techniques in this busy office. Please write CDA Box 2485.

Auxiliaries

BRITISH COLUMBIA—Abbotsford: HYGIENIST WANTED Full-time hygienist required for busy practice in Abbotsford, British Columbia (one hour east of downtown Vancouver). Applicants must be career minded. Being a "team-player" with above average verbal skills essential for this position. Contact: Mr. M. Motani (604) 852-8487 (collect).

Opportunities Available

BRITISH COLUMBIA—Kootenay: CERTIFIED DENTAL HYGIENIST wanted in southern British Columbia, Kootenay. Full-time or part-time. Reply to CDA Box #2482.

BRITISH COLUMBIA—Prince George: Enjoy the great outdoors of the northern interior! Female dentist with 5 years experience in growing, general, family-oriented practice has an opening in a modern, computerized office for someone seeking a long-term arrangement with possibility of future buy-in. Reply to CDA Box 2479.

BRITISH COLUMBIA—South East: FOR RENT. Dental Space in professional building. 875 square feet consisting of reception area, office, two operatories, staff room with private washroom; storage area; room for laboratory. Ample parking. For further information, please write Creston Medical Management Ltd., P.O. Box 1095, Creston, British Columbia V0B 1G0, or call: (604) 866-5355 or (604) 428-2131.

BRITISH COLUMBIA—Vancouver: Sale of total or half interest in a very busy high gross practice. Broadway and Commercial area. Please write CDA # 2489.

BRITISH COLUMBIA—Vancouver: ORAL AND MAXILLOFACIAL SURGERY PRACTICE FOR SALE. Full scope, well-

established contemporary practice in excellent location has afforded me this luxury. Modern, spacious, well-equipped office. Prefer outright purchase and will consider association leading to purchase. Replies to CDA Box 2487.

ALBERTA—Calgary: Excellent opportunity for a dentist to purchase a large, thriving practice in an exceptional recreational area. If you enjoy a partnership environment, excellent income potential, and good retirement benefits, please call (403) 289-3746.

MANITOBA—Neepawa: Dental office recently vacated in Neepawa, rural Manitoba, half-way between Brandon and Winnipeg, to occupy same building as two established General Practitioners. Neepawa is situated between two national parks, excellent outdoor recreation. If interested please write to Dr. O. White, Box 1660, Neepawa, Manitoba, R0J 1H0 or phone (204) 476-3381 working hours.

ONTARIO—Belleville: ASSOCIATE REQUIRED, full-time, for Belleville area offices. Progressive, preventive-oriented family practice. Bright, modern clinic facilities with excellent staff. Buy-in possibilities. Please call: (613) 466-2777, days or (613) 967-1016, evenings and weekends.

ONTARIO—Toronto: PERIODONTIST REQUIRED. For one day in downtown group practice as an associate or to share space. Contact Lisa (416) 535-2111.

ONTARIO—Niagara: ENDODONTIST, PROSTHODONTIST. Large, modern specialist's office in St. Catharines has space available for a dedicated Endodontist, Prosthodontist or other compatible dental specialist. Excellent regional access to all parts of this 500,000 population under serviced area. Opportunity for full- or part-time associate. Lease or buy-in potential. Please call (416) 687-3636.

ONTARIO—North Toronto: Position available immediately for a paediatric dentist with Ontario certification in a modern, well-established private practice. Full range of dental care provided from preventive to orthodontic services; well care and special needs (mentally and physically compromised) children and adolescents. Associateship with future prospects for partnership or cost-sharing arrangement. Please reply to CDA Box 2426.

NEWFOUNDLAND—Gros Morne National Park: For sale, lease or for associateship. Thriving practice in beautiful park setting. Two fully equipped operating rooms. Owner staying in area and willing to work part-time or cover for vacations. Phone (709) 458-2111 (O) or (709) 458-2147, Dr. Marina Sexton.

NEWFOUNDLAND—St. John's: Busy general practice for sale. High gross and low overhead in newly renovated building. Goodwill priced low for quick sale. New owner simply has to assume equipment and site lease. Please write to CDA Box #2480.

AUSTRALIA—Stawell: Busy dental practice for sale in Western Victorian town of Stawell. Wine growing region close to Grampians National Park. Practice is still growing, and there is great opportunity for further expansion, with room for 2 more surgeries. Sale is regrettably necessary due to family reasons. Price AUS \$150,000 negotiable. For further details apply to Dr. Charles Reid, 52 Main St., Stawell, Victoria 3380, Australia, or telephone (53) 524792.

Equipment

ALBERTA—Lethbridge: For sale: Nitrous Head. FRAZER QUANTIFLEX MDM, N₂O² Unit. All new parts. Call (403) 329-1616.

SASKATCHEWAN: IMPLANTS: for Electric motor/physiodispenser. Electric motor handpiece 280:1. Electric motor h. 15:1 redn. contra-angle. Electric motor h. 10:1 redn. contra-angle. All for \$600.00. Call (306) 525-9620.

ONTARIO—Barrie: For sale: Camera, Minolta Maxxum 5000 Close-up system. Maxxum Auto Focus 100 mm, F 2.8 Macro lens. Maxxum AF 1200, Macro Ring Flash equipped. New, never used. Owned for 1 year. Asking \$1,600. Best offer. (705) 737-2050.

ONTARIO: 1 Cox chairside lab, 1 Cox storage lab, 1 Cox assistant unit 2. Floor display models. Never used. Colour Acorn. Contact: Dr. T. Cox, Guelph Bus (519) 824-4970 or Home (519) 763-0626.

Vacation Rentals

BRITISH COLUMBIA—Whistler/Blackcomb: Walk to village and lift from my super 3 bedroom + loft chalet! Stunning view, fully-equipped. Sleeps eight comfortably. \$2000 per week. Call Dr. David Speirs (604) 874-3404.

BRITISH COLUMBIA—Whistler: If you are planning a summer holiday don't miss this opportunity. \$700.00/week in scenic Whistler for a fully equipped new house. Sleeps to 6 to 8. Lots of summer fun hiking, biking, golf, tennis, fishing, swimming, etc. Also call now for next winter's ski season. For reservation call (514) 562-8255.

BRITISH COLUMBIA—Whistler: Three-to four-bedroom townhouse in Nordic Estates. Three baths, Jacuzzi tub fully-furnished with deck and barbecue. Available for nightly, weekly or monthly rental. Please call, Dr. Ed Murdock, (604) 736-5850 or Dr. Ken Phillips, (604) 433-5756.

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In the December 1989 issue of the Journal, the Continuing Education Department presented a listing of courses sponsored by the Faculties of Dentistry of the various Canadian universities. This list was followed (on the same page) by an advertisement sponsored by "Dental Seminars Inc.". The advertisement offered ". . .the most complete comprehensive functional, straight wire and TMJ orthodontic course . . .instruction in current TMJ craniofacial pain techniques. . .".

The course was advertised as being given by one doctor whose training and credentials were not given except to explain that he was the "originator of . . . The Functional Muscle Malocclusion Concept, the Vertical Overbite Domino Rule, and More. . .".

The location of this advertisement, completing a page of University Sponsored Continuing Education Programs, may suggest to the reader that this course be considered as part of your listing of Dental Faculty sponsored courses.

Perhaps more important, one has the impression that the Journal of the Canadian Dental Association extends its tacit approval to the advertisements it publishes. One wonders whether more attention should be directed to validation of advertising promoting concepts or techniques which may not have a scientific basis or which have not been brought forward as a result of published research that can be tested by other investigators.

The Journal of the Canadian Dental Association should give careful scrutiny to the advertising it accepts for publication in the area of Continuing Education, for the specific reason that there is implied acceptance by the CDA of such programs and the claims they may make or imply.

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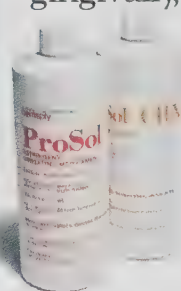
CM inserts deliver medicaments deep into subgingival pockets.

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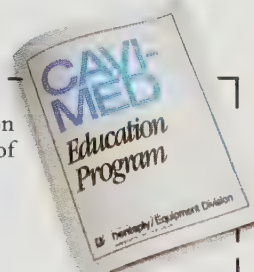


ProSol medicaments kill bacteria on contact.

All of which means, now you can scale supra and subgingivally, root plane, debride and deliver ProSol anti-microbial solutions with one complete prophylaxis system.

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¹Case studies include: The Finnish Xylitol Study, 1982-1987; The French Polynesian WHO Study, 1981-1984; The WHO Hungarian Study, 1981-1984; The Montreal Chewing Gum Study, 1985-1987; University of Michigan Study, 1988.

For more data write to: Xylitol Information, Warner-Lambert Canada Inc., 2200 Eglinton Avenue East, Scarborough, Ontario M1L 2N3

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